Notice—*You will find a convenient summary of the week's news on the orange-bordered editorial page.*

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Foundry Skip Hoist Saves Six Men

Adaptation of Blast Furnace Design—Labor Cost Cut in Half

Daily Melt Increased—Safety Made a Primary Consideration

Lower End of Skip Hoist Used for Charging the Cupola. The charging cars are pushed onto the skip platform and locked into place

MECHANICAL charging of a foundry cupola, with an application of the skip hoist in the design of the charging equipment, has resulted in a marked saving in labor at the Detroit foundry of the Griffin Wheel Co. For years the skip hoist has been used for elevating materials for charging blast furnaces, but its use in foundries has been limited to placing coke in storage. Its adaptation to cupola charging is new in foundry practice and has proved successful at the Griffin foundry.

The cupola charging equipment in the Griffin foundry is a modification of the skip hoist in that the skip bucket has been replaced by a platform similar to a freight or passenger elevator. The charging cars are pushed onto this platform and locked in place. The skip is then started and the platform with the car is hoisted up to the cupola, where it is tilted and the load discharged. The skip platform with its empty car is then lowered to the yard level, where it comes to a stop, and the empty car is replaced by a full one. The operation is then repeated.

Outside in the yard parallel tracks are used to shift the cars to and from the various storage points and a transfer is used to place the car in front of the skip platform. Ease in handling cars and flexibility of the system are the outstanding features.

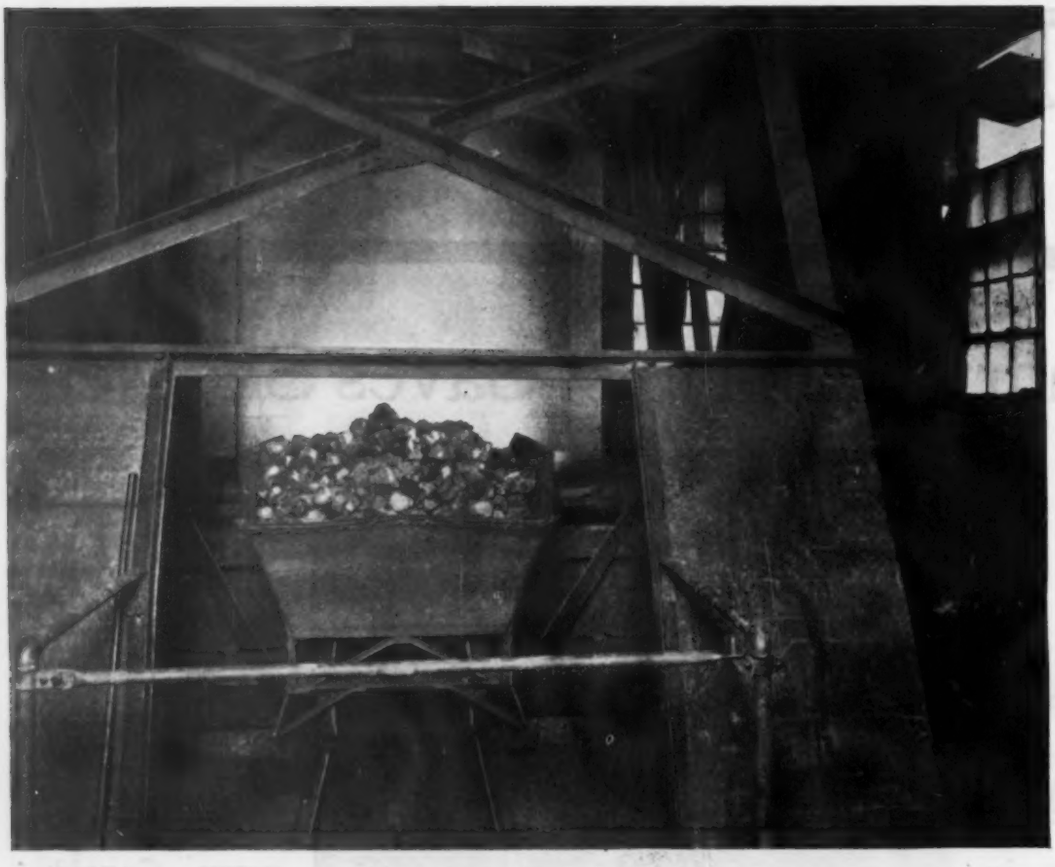
Dumping Produced by Guide Rails

The skip platform, approximately 7 ft. wide and 8 ft. 6 in. long, is equipped with four flanged rollers mounted on two through axles. These rollers are guided by the rails to the top of the skip, where the guides are curved to produce the dumping action. The skip structure, approximately 10 ft. wide, and inclined at an angle of about 67 deg. from the horizontal, is built of structural steel well braced.

Two hoisting ropes are used, one on each side of the skip platform. These pass over deflecting sheaves at the top and from there down to the drum of the hoisting equipment. An equalizer is placed at the top of the equipment to insure an equal pull on the two ropes at all times. The dumping guides are so arranged that the car is emptied of its load almost in the center of the cupola.

Hoisting is effected by a 40-hp. slip-ring type motor driving a drum 30 in. in diameter, geared down to the proper speed through heavy cast steel gears. The motor, gears, drum and a limit switch are all mounted on a rigid structural steel base. The limit switch permits automatic operation. After the controller is turned on the skip is hoisted, dumped and returned to the yard level automatically. A drum type controller is provided, which gives the operator better control during the dumping operation and thus permits him to spread the charge in the cupola.

The height of the hoist or the travel is approximately 46 ft. The platform is hoisted at a maximum speed of 75 ft. per min. At this rate a round trip can be made in a little over 1½ min. The control permits the platform to be stopped at the charging floor

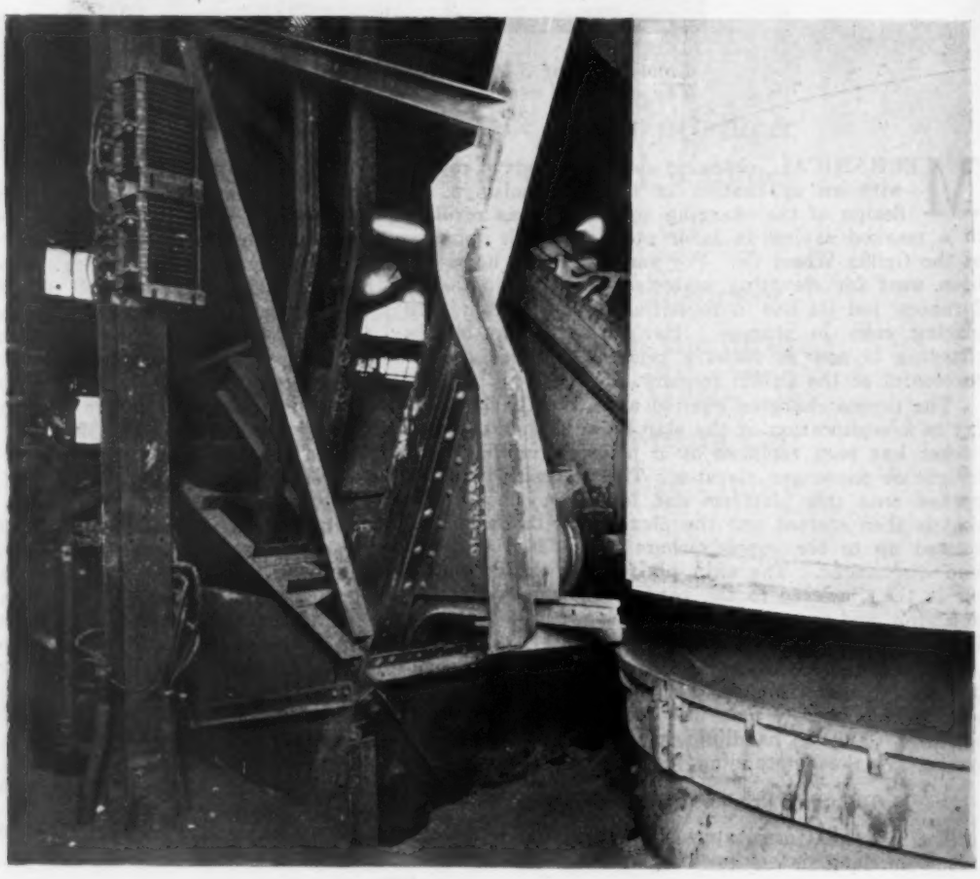


The Skip Platform Can Be Stopped at the Charging Floor Level So That Loaded Cars Can Be Placed in Storage on This Floor, if Desired

level, so that loaded cars can be placed in storage on this floor. These cars can afterward be placed on the skip platform and emptied into the cupola in the usual manner. Safety switches are provided at the top and bottom of the hoist, to act in event of the failure of the limit switch, and a solenoid brake on the hoisting engine will hold the load when the power is off.

Save Six Men of the Eleven Needed Before

Five men are used for the entire charging operation. One man makes up coke charges and two are employed in the yard, loading and shifting cars, and in moving cars to and from the hoist platform. A crane man devotes about 60 per cent of his time to handling ma-



Dumping the Charge Into the Cupola. A drum-type hand controller enables the operator to spread the charge in the cupola

terial for the cupola. One man is stationed at the charging floor to control the dumping and to operate the skip hoist. When the cupola was hand charged, eleven men were necessary for the work; consequently, with the hoist, there is a saving of six men.

Not only has the skip hoist resulted in a saving of labor but, with the fewer men, the daily melt has been increased. Formerly 105 to 110 tons, it has been raised to 140 to 160 tons. The skip hoist charging equipment has had no detrimental effect on the operation of the cupola and coke consumption has been low. Chemical analysis of the iron has been satisfactory.

Various subjects in connection with the cupola, such as separating and supporting the stack independent of the body of the cupola, the lining, height of the charges, etc., had to be taken into consideration when it was decided to use the skip hoist type of charging equipment, but these problems were all worked out satisfactorily.

Cupola Charging Cars Are Loaded on Parallel Tracks in the Storage Yard and Are Shifted on a Transfer Track to the Front of the Skip Platform. Lower end of skip hoist appears in the large open door at center

This skip hoist was a combination of several previous forms of mechanical charging used by the Griffin Wheel Co., which were adopted because of the scarcity of labor during the war period. The equipment, first operated on Feb. 9, 1925, has been in continuous operation ever since and has contributed toward making this foundry one of the most economical producers of car wheels. The engineers of the Griffin Wheel Co. originated the plan to use the skip hoist type of mechanical charging equipment, and it was built by the C. O. Bartlett & Snow Co., Cleveland.

Reclamation of Iron by Electrolysis

Recovery of iron from rubbish is the aim of metallurgy, Charles P. Perin, New York mining engineer and head of Perin & Marshall, consulting engineers, says in a research report to the Engineering Foundation. Reclamation by electricity, he asserts, is possible.

"Discarded iron objects, from cans to automobile bodies, are increasingly disfiguring the countryside, especially in proximity to communities," declares the report. "Large tanks of iron solvent, ferrous chloride, for example, could be maintained in convenient places into which these wastes could be dumped. Then the iron could be recovered by electrolysis."

Twenty million tons of iron and steel are destroyed yearly through corrosion, states the report, which asks why electricity cannot be used to help "in producing at reasonable cost iron which will rust less rapidly or not at all."

Large deposits of iron ore, which on account of their distance from fuels are of no commercial value, will be immensely important when iron can be produced directly from its ores by means of electricity, it is added.

Much progress has been made in the production of electrolytic iron, the report points out, adding:

"About fifty years ago iron was produced electrolytically by Elihu Thompson and Edwin Rice, but found so hard, rough and brittle that nothing was done with it. Since then many patents have been issued in France, the United States and other countries. A few years ago the most successful concerns in France and the United States found that each had knowledge and patents that would be valuable to the other. They combined forces. At Niagara Falls electrolytic iron of a purity of 99.96 per cent is being produced, while research and development are going on. This iron is resistant to corrosion and has advantageous physical qualities."

Indirect Heat Oven Patent Again Held Valid

A decision has been rendered by the United States District Court of Minnesota, Fourth Division, sustaining patent No. 1,104,652 owned by the Gehnrich Indirect Heat Oven Co., Inc., Long Island City, N. Y., in an action for infringement brought by the Gehnrich Co.

This is the second time that the patent has been held valid. That part of the patent that was infringed is covered in claim No. 1, which reads as follows:

"In a portable oven, the combination with a casing adapted to constitute the upper, lower and side walls of a bake compartment; a heat compartment arranged within the upper part of the bake compartment; a fire compartment arranged within the lower part of the bake compartment; a series of flues situated in the bake compartment separated from the walls and extending from the fire to the heat compartment; devices for heating the fire compartment and a chimney leading from the upper compartment."

Rimmed Steel and How It Is Made

II.—Melting Furnace Practice—Effect of Manganese—Intermediate and Central Holes

BY HENRY D. HIBBARD

[The first article of this series was published in THE IRON AGE, *June 24. It described this type of steel and discussed its uses and properties.]*

INTERMEDIATE holes are normal in rimming steel and, when it is well made, lie quite uniformly in a narrow zone 2 or 3 in. in from the surface. They are thought to be formed by the last carbonic oxide to separate from the steel, the bubbles being entrapped in the mushy metal next to and adjoining the shell already frozen. The larger ones are of irregular shapes, the smaller approximating to spheres about ¼ to ⅜ in. in diameter.

The size and location of these holes is in some measure a function of the carbon concentration for, when that is at a minimum, as in Armco iron, containing about 0.02 per cent, the intermediate holes are relatively small and few in number as compared with those in steel containing a notable amount of carbon, say, about 0.10 per cent or more, and they are sometimes located between 3 and 4 in. from the surface.

Central Holes

A few of the central holes are generally present in well-made rimming steel, located at random in the central portions of the ingot. They are thought to be formed by bubbles of nitrogen or ammonia (NH_3), one or both, because a freshly split ingot sometimes smells of ammonia, as does the gas from a central pipe cavity. Sometimes, and perhaps always, an ingot, which has skinholes all over like honeycomb, has a solid interior with no central holes. In such an ingot the central metal is more coarsely crystallized than in one having no skinholes, but its quality is unknown, as such ingots are always remelted. It is quite likely that the central-hole gas is eliminated in part with the skinhole gas by the boiling action.

Melting Furnace Practice

Running the furnace and its care, the melting stock used, charging the furnace, melting down, decarburization and sampling are not peculiar to rimming steel except as to manganese in the charge as noted later, and to the effect on the furnace of the necessarily higher temperature at the end. For making rimming or any other low-carbon steel, the furnace must be in condition to endure a higher heat than when higher carbon steel is being made. Thus for plain steel, containing 0.10 per cent of carbon, the furnace laboratory must at the end be about 60 deg. C. hotter (an important amount), than when 0.60 per cent carbon rail steel is being made, to give the metal the proper temperature.

When a furnace, which has been making higher carbon steels, is put to making rimming steel the higher temperature needed for the latter melts a lot of the hearth material which would otherwise have remained unmelted. The hearth is thereby scored and wasted away, (which is sometimes an advantage when it has grown too high), and the volume of slag is increased for a few heats.

The charge should preferably be so proportioned in regard to crude iron and scrap as to contain, when first all melted, about 0.50 per cent of carbon and about 0.20 per cent of manganese. Decarburization should then be as rapid as practicable with a strong boil, slowing down at the end as the desired content of carbon is approached.

Every steel melter tries to develop in his bath what he considers a "good" boil, one effect of which is probably to drive out some of the skinhole and central hole gases as already noted. The proper boil for rimming steel at the end is not easily described. It varies with the carbon content and method of casting. Generally speaking, the lower the carbon the quieter the boil with a given slag or rate of feeding ore. For top-casting a livelier boil is demanded than for bottom-casting. The degree of effervescence in the mold follows in a way the degree of boil in the bath.

Degrees of Boil Employed

The writer has adopted the following names to designate the degrees of boil employed in making rimming steels.

Gentle: The bath is one-fourth covered by bubbles.
Moderate: The bath is nearly covered by bubbles.
Brisk: The bath is wholly covered by bubbles which crowd each other.
Strong: The bubbles crowd each other so as to raise the surface of the bath noticeably.

Generally speaking, the more active the boil, the larger will be the bubbles, up to 2 in. in diameter when the boil is strong. The finishing boil will vary in a general way from "gentle," when the metal contains 0.08 per cent of carbon to be bottom-cast, to "brisk" when the carbon is 0.20 per cent and the steel to be top-cast. The proper boil for any given set of conditions is quickly learned by one familiar with the art.

The desired boil is obtained by (1) a proper charge, (2) proper additions of ore and (3) proper temperature of the bath. If it is too strong, it may be weakened by allowing the bath to work without more ore added, or in an extreme case by the addition of crude iron or spiegel. But when the boil is weak, because of low content of carbon, which it may sometimes be, such additions may make it more vigorous. With insufficient ore additions, or too much residual manganese, or if the temperature of the bath is too high, the boil is likely to be too weak and, as a consequence, too much skinhole gas may be retained in the metal. Its saturation point may then, in the mold, be reached too soon for good practice, so that some bubbles of the gas are likely not to be swept away by the churning but remain near the surface and cause defects already noted. In such a case, even if the steel be cast at the proper temperature, some skinholes may exist in the ingot, as effervescence does not reach its full force instantly, but requires that the metal shall have cooled a certain required amount for the gases to be evolved at the proper rate to give effective churning.

The boil steadily becomes quieter, with normal procedure, as the end is approached, which is due partly to the diminishing concentration of carbon in the metal and in part to the lessening amount of oxygen which reaches it. From tests taken and the behavior of the bath after ore additions, the furnaceman knows to what cause or condition to ascribe the state of the boil and how to vary it if needed. If crude iron or spiegel are added near the end, time should be allowed before tapping for the boil to resume its normal activity.

If the steel is to be top cast, the boil in the furnace must be distinctly more vigorous for a given carbon content than when it is to be bottom cast. A single mold is filled more rapidly than a mold in a bottom-cast group, even when a smaller nozzle is employed, and it is the cooling of the metal which sets free the gases of effervescence as already stated. Top-cast steel

must, therefore, in order to start effervescing promptly, be more fully charged with those gases than bottom-cast, for which reason the boiling action of the former in the furnace must be stronger.

Regulating Rate of Effervescence

For obtaining the desired rate of effervescence in the mold:

1.—Have an adequate boil in the furnace, particularly at the end, to secure which it may be necessary to continue additions of ore, in some cases, to shortly before taking the last test or sample.

2.—Limit the amount of stirring given the bath to that required to make it fairly uniform in composition before sampling. Usually one rod before each sample is advisable.

3.—Don't add any gas-solvent at the end or in the ladle unless the boil is too vigorous. If any is added to the bath, as for raising the carbon content, wait before tapping until the boil has resumed its proper activity.

4.—Don't have residual manganese over 0.15 per cent for bottom casting, or over 0.10 per cent for top casting.

5.—Have correct casting temperature.

Stirring a low-carbon bath causes a great outrush of gases, manifestly the kind which effervesce in the mold, where they may all be needed. In one plant, which makes both Bessemer and open-hearth rimming steels, a series of heats made simultaneously by both processes were infested with skinholes so that the ingots were too thin-skinned.

Effect of Weather

For this to happen with both processes at the same time may have been only a coincidence, but it again raises the question as to whether or not the humidity of the atmosphere was exceptionally high at the time because, if so, the content of hydrogen in the steels may have been proportionately great and its tendency to form skinholes likewise. It is an unsettled point but it may be advisable to have a stronger boil during decarburization in wet weather than in dry, and, further, it may be that, as a rule, the boil should be stronger in warm than in cold weather, for the reason that warm air usually holds more moisture than cold.

Manganese in Rimming Steel

Rimming steel has been described as over-oxidized steel, somewhat in accord with the idea expressed by some writers that dead steel is deoxidized and steel evolving gas is not. Though oxygen plays an important and indispensable part in making rimming steel, to which end it must be freely used, that designation is not accurate. Unfinished steel in the furnace, which contains from 0.10 to 0.15 per cent of manganese, (which it may have and yet boil quite freely) can hardly be over-oxidized. On the other hand, dead steel may be ruinously charged with oxides.

Manganese serves to prevent redshortness in rimming steel as it does in other kinds but, in making the former, it has also an important effect on the boil in the furnace and on effervescence in the molds, for which reasons its content in the unfinished as well as in the finished steel should be within limits. These have been already stated for residual manganese in the unfinished steel. In finished rimming steel manganese should be between 0.35 and 0.45 per cent, preferably 0.40 per cent. If with that percentage it shows any redshort tendency it is not well-made in some particular, probably needing longer time in the furnace to clean itself.

Too much manganese in the materials of the charge gives too much residual in the bath metal, where it has a quieting effect and the boil is then too sluggish. Such a boil is likely to be followed by too weak effervescence in the mold, in which case the steel is likely to rise before beginning to rim in, indicating that skinholes are being formed near the surface. To control manganese in the charge demands that it be right within limits in the crude iron, and the right percentage in the iron depends on the proportion it constitutes of the whole charge, either in the form of pig or "hot" (molten) iron. If the proportion be 40 per cent, then 1.25 per cent in the pig is right. If greater than 40 per cent, then the manganese should be correspondingly less. If manganese in the bath metal be too low for any reason or at any stage of the operation, the desired percentage may and should be made up by adding some, preferably in the form of spiegel.

When both killed and rimming steels are made at the same plant, the crude iron for both kinds passing through the same mixer or reservoir, the manganese content must naturally be a compromise, or say 1.50 per cent even, though 1.25 would be preferred for rimming steel and 1.75 per cent for killed. Manganese may be slowly oxidized in the bath by additions of iron ore, if carbon in the metal and manganese in the slag both be low, but it is not advisable to make such oxidation regular practice.

The first basic rimming steel made by the writer had almost no residual manganese, not over 0.02 per cent. It effervesced so strongly that, in a minute or two, it settled to about half the volume it had at the end of teeming when the bottom-cast molds were filled with steel. Each ingot when solidified consisted of a butt attached to a hollow shell or "bootleg" of the shape of the mold interior. The ingot-butts rolled fairly well nevertheless, showing that the steel was not over-oxidized even though it contained so little manganese in the bath. The finished steel contained about 0.35 per cent.

In a certain recent practice wherein rimming steel was both bottom and top-cast, the manganese in the crude iron was around 1.60 per cent and the residual manganese in the bath metal at the end about 0.20 per cent. In the bottom-cast ingots the steel had some rising tendency but, when rolled direct, made fair boiler and structural plates. In 3-ton square top-cast ingots, it rose too much and had some small skinholes near the surface which gave rise to blisters when sheets rolled from it were pickled. By cutting down the manganese in the crude to 1.25 per cent and by other measures already alluded to, ingots with thick skins were obtained which were almost wholly free from such blisters. The residual manganese was then about 0.10 per cent.

Effect of High Manganese

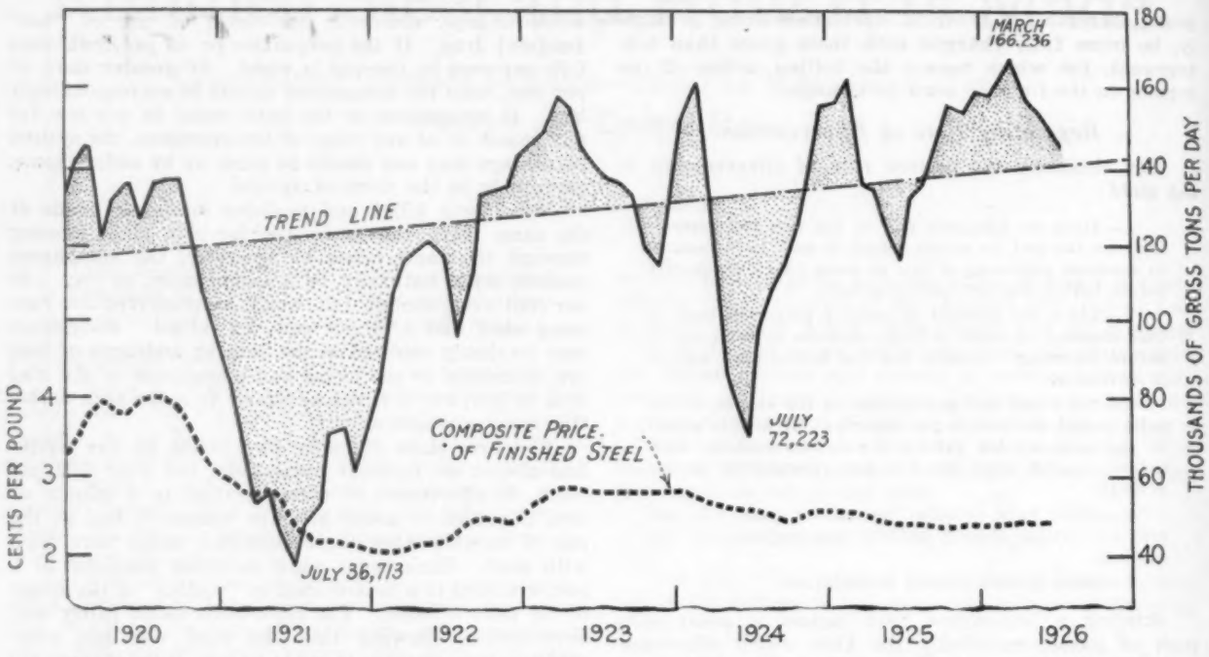
High manganese in the steel tends to check effervescence, as illustrated by the following case: A basic Bessemer plant makes top-cast rimming steel for skelp for welded pipes. The residual manganese in the metal at the end of the after-blow is usually around 0.15 per cent. Ordinarily there is more than ample effervescence so that aluminum is commonly used to check it. When the finished steel contains about 0.40 per cent of manganese, about one ounce per ton is added to prevent settling. When the final manganese is high, or around 0.55 per cent, no aluminum is needed as the steel rims in level without it. Intermediate manganese contents take aluminum in proportion.

(To be concluded)

Locomotive Shipments Better

Shipment of 159 railroad locomotives in June is reported by the Department of Commerce. This compares with 140 in May and with 114 in June last year. All but 15 of the June shipment were for domestic account, the list including 133 steam and 11 electric locomotives. The 15 export units were 12 steam and 3 electric.

Shipments for the first half of 1926, at a total of 896, showed a gain of 45 per cent over the 619 of last year. The smallest total for any month this year is larger than the largest total for any of the 12 months of 1925. Export shipments, however, were greater in 1925, the total for six months having been 157 against 112 this year. Unfilled orders at the end of June totaled 667, which is about equal to the average of the preceding six months. A year ago there were only 411 on order.



June Production of Steel Ingots Shows That the Daily Output Was About 4.8 Per Cent Less Than That of May

Decline in June Steel Ingot Output

Daily Rate 7488 Tons, or 4.8 Per Cent, Less Than for May—Record for First Half Year

THE moderate decline in steel ingot production which set in in April and continued in May was manifest in June. At 144,256 tons per day for the 26 working days, the June output was 7488 tons per day less than the May rate, a decrease of 4.8 per cent. A year ago the June decrease from May was 9635 tons, or 7.3 per cent.

For the first six months the daily rate this year has averaged 12,113 tons more than for the same period a year ago but the decrease in operating capacity this year has been much less than it was last year. The production for the half year at 24,260,500 tons exceeds that of the corresponding half year last year by 1,877,500 tons and is the largest first half year's production on record and much larger than any second half.

The statistics of the American Iron and Steel Institute show that the June production for the companies which made 94.50 per cent of the country's total in 1925 was 3,544,367 tons. Assuming that the 5.50 per cent not reporting produced at the same rate, a total June output is indicated of 3,750,653 tons, from which the daily rate was calculated. According to the estimates of the institute, June operations were 80.34 per cent of the "theoretical" capacity, compared with 84.51 per cent in May, 88.33 per cent in April and 92.58 per cent in March, the peak of the year.

The table gives the reported production by months of the different kinds of steel, together with the estimated daily rate for all companies.

Production of Steel Ingots

(Gross Tons)

Months 1926	Reported by Companies Which Made 94.50 Per Cent of the Steel Ingot Production in 1925			Calculated Monthly Production All Companies	Approximate Daily Production All Companies
	Open-Hearth	Bessemer	All Other		
Jan.	3,326,846	581,683	13,664	4,150,469	159,633
Feb.	3,023,829	556,031	12,818	3,801,776	158,407
March	3,590,791	635,680	15,031	4,488,362	166,236
April	3,282,435	601,037	13,652	4,123,941	158,613
May	3,201,230*	516,676	10,437	3,945,336	151,744
June	3,036,162	498,764	9,441	3,750,653	144,256
6 mos.	19,461,293	3,389,871	75,043	24,260,537	156,520
1925					
Jan.	3,263,256	689,996	11,960	4,193,281	155,307
Feb.	2,933,225	602,042	12,998	3,752,352	156,348
March	3,337,721	614,860	13,633	4,194,340	161,321
April	2,858,866	515,715	14,182	3,583,676	137,834
May	2,755,561	497,708	13,790	3,454,971	132,883
June	2,540,729	476,945	12,490	3,204,451	123,248
6 mos.	17,689,358	3,397,266	79,053	22,383,071	144,407
July	2,446,068	457,095	13,547	3,084,472	118,634
Aug.	2,698,285	523,734	12,914	3,420,998	131,577
Sept.	2,738,673	547,121	13,977	3,489,565	134,214
Oct.	3,077,114	584,567	15,624	3,888,814	144,030
Nov.	3,092,194	581,347	17,085	3,902,900	156,116
Dec.	3,169,796	569,304	15,843	3,970,918	152,728
Total	34,911,488	6,660,434	168,043	44,140,738	141,932

*Revised.

Slight Decline in Building Construction

Building and engineering contracts in the 37 States east of the Rocky Mountains are reported by F. W. Dodge Corporation to have amounted in June to $547,800,000. This was a drop of nearly 1 per cent from May and of 2 per cent from June, 1925. As for many months past, residence construction, with $237,700,000, formed much the largest item. Industrial buildings at $54,500,000 provided 10 per cent of the total and continued at the low level of the past year or more. Commercial buildings amounted to $68,000,000. The area covered by these figures represents about 91 per cent of the total construction volume of the country.

A new record was reached for the first six months of the year, the total having been $3,113,000,000, compared with $2,749,000,000 in the first six months of 1925. The increase was 13 per cent. Only in the Pittsburgh district was an increase registered in June over both the preceding month and June, 1925. In each case the present figure shows a gain of approximately 50 per cent. It registered $95,061,000. Of this amount $22,177,000 was for industrial buildings, this figure being nearer to the total for residential building than in any other district.

Serving Two Plants with Coke

Different Coal Mixtures Required for Needs of the Two Furnace Groups—All Coke Made in Same Ovens

BY DANIEL M. RUGG*

IT is the duty of a coke plant to serve the blast furnace, and not merely to supply it with coke. Some blast furnace operators feel occasionally that this is not the case and that they are merely being supplied with coke, either good, bad or indifferent, as the case may be. Occasionally a single coke plant supplies two or more groups of blast furnaces with fuel. This situation makes it more difficult for the coke plant operator to give either blast furnace group the best service, or service which he might be able to give if considered individually. The above opinion is not unanimous among operating men, as some feel that "good coke" is "good coke," irrespective of size of furnace, kind of iron being produced and operating methods of the management.

I would like to recount here an experience which we had in Buffalo, which I hope will bring out discussion that will prove interesting and valuable, even if it should be decided that I am not correct in my opinion.

Three Batteries of By-Product Ovens

The plant of the Donner-Hanna Coke Corporation at Buffalo consists of three batteries, each of 50 11½-ton Koppers ovens. The usual coking time is about 14 hr. 18 min. gross, or 252 ovens pushed in 24 hr. There is one 2700-ton coal storage bin, between No. 2 and No. 3 batteries, which has one vertical partition forming a "small" bin of 900 tons capacity and a "big" bin of 1800 tons capacity. There is a coal storage yard with a capacity of 150,000 tons, so arranged that each kind of coal may be unloaded, stored and reclaimed separately. There are four mixing bins under the Bradford breakers. The desired coal mixture is fed from these bins into the hammer pulverizers and from there conveyed to the oven storage bin. There is a single coke wharf and one screening station. A rotary grizzly passes all coke over 3½ in. through a roll crusher.

Furnace coke is screened over a cascade bar, grizzled space between the bars being about 1⅜ in. in the clear. The screening in general is good but by no means perfect. Furnace coke from the bar grizzly is fed into cars by a boom loader. While this company does some outside selling, the bulk of its coke production goes to the two groups of blast furnaces.

Two Groups of Furnaces

In Group No. 1 there are two blast furnaces with general dimensions as follows:

Furnace	Hearth Ft.	Hearth In.	Bosh Ft.	Bosh In.	Height Ft.	Height In.	Tuyeres	Stack Line Ft.	Stack Line In.	Stoves
No. 1	17	6	21	6	90	0	12	16	6	4 McClure 3-pass
No. 2	17	0	21	0	90	0	12	16	0	4 McClure 3-pass

No. 1 furnace has a McKee distributer. It was blown in during August, 1924. No. 2 furnace has a stationary top and a rather small hopper. This furnace was blown in during March, 1920, and had made 880,000 tons of iron at the end of the run described below. These furnaces are equipped with Brassert gas washers.

During all except the first month of this period No. 2 furnace was on basic iron. No. 1 furnace was on foundry iron, except as noted in Table I. While the amount of scrap used on No. 2 furnace was greater than that on No. 1, the quantity used on each furnace throughout the period was consistently uniform.

In Group No. 2 there are three blast furnaces having the following dimensions:

Furnace	Hearth Ft.	Hearth In.	Bosh Ft.	Bosh In.	Height Ft.	Height In.	Tuyeres	Stoves
A	13	9	19	3	80	3¾	10	2 2-pass side combustion 18 x 80 ft. 1 2-pass central combustion 18 x 80 ft. 2 2-pass side combustion 22 x 90 ft.
B	14	6	19	0	80	10	10	4 2-pass side combustion 20 x 80 ft.
C	14	6	19	0	79	3	10	3 3-pass McClure, 18 x 75 ft.

These furnaces were making foundry or malleable iron, an indicated in Table I. No scrap except that produced by the furnaces themselves was used at any time.

Trials of Differing Mixtures

Both groups of blast furnaces had been in operation for some time before the coke plant was built. The coke plant was put into operation late in 1920 and from that time until late December, 1924, a number of different coal mixtures were tried and the results obtained at the furnaces varied considerably. During practically all of this period, the same coke was shipped each group at any given time. There were occasions when one group of furnaces was doing well in coke consumption and iron produced. There were occasions when satisfactory results were obtained on the other group. There was not a single period when both groups were doing good work. There were, also, some occasions when both were anything but pleased with their coke.

The coal supply was purchased on the open market. Its quality varied considerably, often because of factors entirely out of control of those in authority at the coke plant. The general tendency was toward better and more uniform coal supply and, in the opinion of the coke plant operators, the coal supply on Dec. 1, 1924, was about the best in the history of the plant.

Discordant Results in Late 1924

Table I shows the operating results on each group of furnaces during the months of July to December, 1924. The analyses of coal and coke and the coal mixture used are given, for the same period, in Table II.

Compared with past practice, Group No. 1 was doing good work and the results seemed to be improving. The manager did not want to make any change in the coke.

Group No. 2 was going from bad to worse and the results for six months, from July to December, 1924, were about the worst in its history. "A" furnace was blown out the last of September and was being relined. "B" furnace was in bad shape and it seemed that she would have to be blown out very soon. Top heats were running up to 600 deg., instead of the usual 300 deg.

Coke plant operation was uniform and we felt that we were doing everything in our power to produce good blast furnace coke. We were perfectly aware that good blast furnace coke meant good operating results at the furnaces.

Experiments to Obtain Density

We were told in no uncertain terms by the management of Group No. 2 furnaces that our coke was very

(*Continued on page* 192)

*Koppers Construction Co., Union Trust Building, Pittsburgh.

Explain Manufacture of Hypoid Gears

Gleason Engineers Outline Method Which, for Most Part, Employs Same Equipment Used for Spiral Bevel Gears

Fig. 8

FOLLOWING is the second part of the paper on "Hypoid Gears," presented by Arthur L. Stewart and Ernest Wildhaber of the Gleason Works, Rochester, N. Y., at the summer meeting of the Society of Automotive Engineers, which was held at French Lick Springs, Ind., June 1-4. The first part of the paper appeared in THE IRON AGE *of July 8, page 84.*

The two methods of production of hypoid gears developed by the Gleason Works have already been mentioned in the first part of the paper.

The earlier method, in which the gear is cut without generating roll, is theoretically accurate; that is, it does not contain the least theoretical error or approximation. This method has been discontinued in favor of a newer one, that gives as good or better results on account of its increased flexibility, and which incidentally permits the use of the present gear generating machines on the gears. We will limit our explanations to this method. It will be seen that the method has been worked out mathematically to a high degree of perfection and is not based on any assumption of which the effect is not entirely known. Although somewhat long in figuring, this method is very practical in operation and permits refinements not previously available.

According to this newer method, the gear is cut exactly like a spiral bevel gear of the same pitch angle. In the production of the pinion a Gleason generator with additional adjustments is used, and the pinion axis is offset from the axis of the cradle. The cutter is of the usual Gleason type having straight cutting edges, which are at an angle to the axis of the cutter.

Preferably, different cutters are used on gear and pinion. One gear cutter and one pinion cutter can cover all cases. It is not necessary to use cutters with varying amounts of pressure-angle correction, as has been the practice with spiral bevel gears. During the generation, the cutter represents a crown gear with an offset axis and conjugate to the same pinion that is also conjugate to its known mating gear. A generating motion is provided between the cutter and the pinion blank as if the pinion would roll on said crown gear.

Analysis of Mesh Between Pinion and Gear

We will now briefly analyze the mesh between a hypoid pinion and its mating gear:

In Figs. 3 and 4 (in the first part of the paper), the mesh between a pinion and a crown gear has been illustrated. It has been found that, if the teeth extend along certain pitch lines, either side of the teeth meshes along the same line of action in the pitch plane of the crown gear; that this line of action c, Fig. 4, is independent of the pressure angles, and that the projected tooth normals, i and o, of either tooth side intersect at the same point, j.

Somewhat analogous conditions can be determined in the present case, in which the mesh in a pitch plane between two hypoid gears is considered, the axes of which are inclined to the pitch plane. In Fig. 6, I and J are pitch surfaces of gear and pinion, which are tangent to a common plane selected as the drawing plane of Fig. 6. K and L are the projected axes of gear and pinion, and also the contact lines between the pitch plane and the pitch surfaces I and J.

However, in contradistinction to the former case of pinion and crown gear, the line of action of the same character cannot extend along line L, but extends along a line T, which is inclined by a small angle Y to line L. The relation between the location of points j and t can be determined in a manner analogous to the one explained with reference to Fig. 4; that is, point j may be determined by drawing line N connecting points g and t and by drawing line V through point h at right angles to line of action T. The intersection point P is then projected to normal i thus locating point j. Instead of using a graphical solution as illustrated by the diagram, the location of this point and of all other points can also be determined by calculation, which is more accurate, and which is exclusively used at the Gleason Works.

Pressure Angles Change

The normal pressure angles along points Q of line of action T, that is, the inclinations of the tooth normals at points Q, can be determined from the known structure of the gear and the cutter which produces it.

They change slightly along the tooth and are also different from the pressure angle of the pinion cutter except at point h. In order to cut a pinion with pressure angles exactly matching those of the gear, along the whole length of the teeth, another line of action R is determined for the mesh between the pinion and its crown gear, which is represented by the cutter. The mesh during generation extends, therefore, along a line R, different from the line of action T of the pair of hypoid gears. Line R is inclined by a small angle X to line L. The final step is to determine a crown gear, which is able actually to mesh along the figured line R with the pinion, and which contains tooth sides which are conical surfaces of suitable diameter. A tooth side of this crown gear is then represented by a cutter, and the pinion is generated while meshing with this imaginary gear.

With the developed method, tooth surfaces may be produced which match those of the mating gear along the whole length and along the whole depth of the profiles. However, for reasons of adjustability, that is, to provide a certain range of running positions and to allow for non-rigid mounting, the bearing area of the teeth is preferably somewhat restricted, especially in the case of rear-axle drives. Any desired deviation from full bearing may be obtained lengthwise of the teeth and on the depth; that is, on the profile. More curved or less curved tooth profiles on the pinion are obtained by changing the offset between the pinion and the crown gear, after refiguring the settings. It has been pointed out previously that on the tooth side of the pinion, which during the meshing is opposite to the axis of the gear, an increased offset requires a

flatter profile; that is, less curvature of the profile. If, therefore, on this side, which is usually the drive side, the offset is increased during the generation, the resulting profile will be flatter; and if the offset is reduced, the resulting profile will be more curved. The opposite holds true for the tooth side of the pinion, which is on the side of the axis of the gear or crown gear.

Bias bearing, that is, a tooth bearing, which extends obliquely across the tooth surface and which has occurred and been found objectionable in certain cases of curved tooth gearing, results when the pressure angles of gear and pinion do not match along the whole length of the teeth. The pressure angles of hypoid gears are made to match along the whole length of the teeth and bias bearing is thus eliminated.

Another feature illustrating the flexibility of the method of cutting is the fact that the tooth bearing of a pair of hypoid gears under production can be raised or lowered, or moved endwise, by simply changing the cutter setting. If it is desirable, for instance, in order to counteract hardening changes, to shift the tooth bearing, the tooth bearing can be placed readily on any desirable spot whatsoever on the tooth surface.

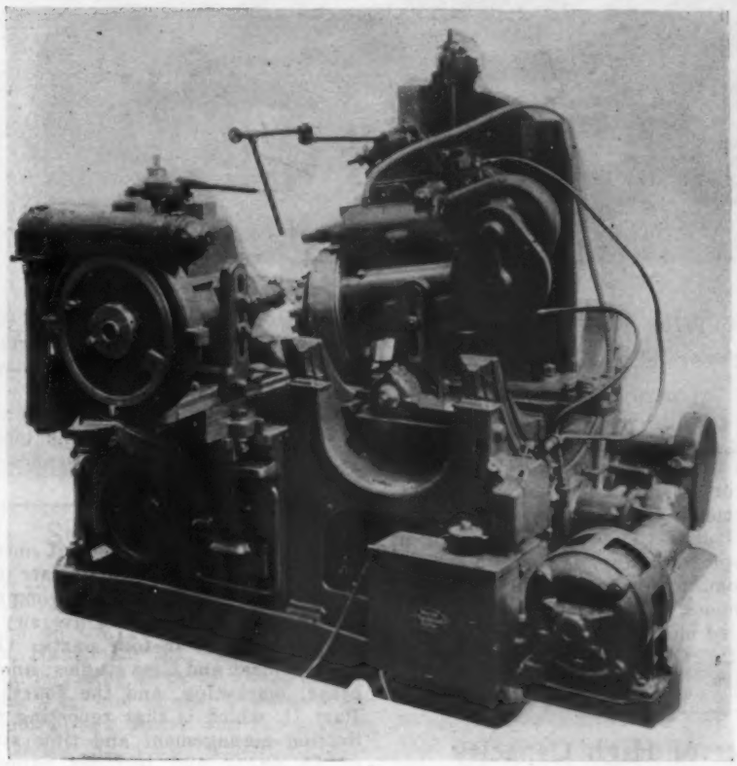


Fig. 7—Hypoid Pinion Finish-Cutting Machine. The equipment for rough-cutting the gear and pinion are the same as used for spiral bevel gears

Production operations are, in general, the same for hypoid gears as for spiral bevel gears. This includes preparing the blanks, cutting the teeth, hardening, grinding bores, shanks, etc., and lapping the teeth. The blanks are turned to different dimensions, being larger in the case of the pinion, and of slightly different face and back angle and outside diameter in the case of the gear. Machines for rough-cutting the gear and pinion and for finish-cutting the gear are the same as used for spiral bevels. The pinion finish-cutting machine has additional adjustments for setting purposes, after which the cutting operation itself is the same. The added settings are a vertical adjustment of the work spindle in accordance with the offset of the pinion with respect to the gear, and two angular adjustments of the cutter spindle, about horizontal and vertical axes respectively. These adjustments are clearly seen in Fig. 7. In the testing and lapping operations, machines must have the same offset of work spindles as the pinion and gear shafts are to have in final assembly. Fig. 8 shows a pair of hypoid gears on the testing machine.

In cutting the pinions, it is found advantageous to cut the top side on one machine and the bottom side on another machine. This saves time, as nearly all the machine settings have to be changed in going from the top to the bottom side. Pinion cutters are then made with all outside or all inside cutting edges, which permits a speeding up of the machine. Cutters of 9 in. mean diameter are used in all cases of hypoid gears up to date.

It will be seen from the above that production costs of hypoid gears will vary but little from costs of spiral bevels. Cost of blanks will be changed only in the case of the pinion, where the increase in diameter will call for a slightly larger forging. If advantage is taken of the additional load-carrying capacity and gear diameters are reduced, this will more than offset additional cost of pinion blanks. Cutting cost for the pinions will be slightly less on account of using all inside and all outside blades on the cutters.

Ring Gear of Smaller Diameter Influences Chassis Design

The use of a ring gear of smaller diameter and the location of the rear end of the propeller shaft will have important influence on chassis design. On account of the capacity of hypoid gears for greater transmitted load, a decrease of about 10 per cent in ring gear diameter can be made without increasing unit stresses. This makes possible a greater road clearance. The lowered position of the driving pinion removes the chief obstacle to lowered floor boards at the rear ends. Advantage can be taken of this to lower the whole body.

A very practical point of advantage for any present user of spiral bevel gears, who is considering adopting hypoid gears, is that the change can be made with slight change in manufacturing method or equipment. As has been pointed out already, the finish-cutting of the pinion is the only major operation requiring machinery different from that used for spiral bevel gears and pinions.

Various Expanding Uses of Sheet Steel

A Kansas City firm has introduced sheet steel lunchstands. They are regarded as offering the first sure protection against rats that the lunchstand proprietor has yet found, and are easily moved from place to place. The Atlantic City restaurant of Chicago has found permanent satisfaction, it is reported, in sheet steel counters. Both restaurants and lunchstands apparently find desirable qualities in sheet steel.

Other companies have begun to use sheet steel in building waiting stations for buses and interurban cars. The rapid growth of bus transportation in the country promises a profitable market.

L. L. Huntington has reported interviews with Marshall Field & Co. and other western office furniture dealers to the Sheet Steel Trade Extension Committee of the National Association of Sheet and Tin Plate Manufacturers. He finds that the old prejudices are being broken down rapidly in this field. Steel filing cabinets have nearly displaced wood, and prices are falling with increased buying. Steel desks and tables were introduced later than the filing cabinets and are now beginning to sell readily. Furniture dealers report complete stocks on hand and are beginning to push their sales. Mr. Huntington sees a similarity in the present position of steel desks with that of filing cabinets ten years ago, and predicts rapid growth.

The Gasoline-Electric Power Unit Has Been Developed for Trucks Having Electric Motors

Industrial Truck with Gasoline-Electric Power Plant

The Ready-Power Co., 5626 McGraw Avenue, Detroit, has developed a gasoline-electric power plant for lift and load carrying trucks for industrial purposes. The unit consists of a four-cylinder, water-cooled Continental Red Seal motor driving a low-voltage generator in a steel compartment of such size that it may easily be mounted on trucks. The motor, operating at a constant speed except for idling, is under governor control, designed automatically to adjust the engine load to truck requirements. The appliance is made in two similarly constructed models, one to meet the needs of trucks equipped with 24 to 30-volt motors, and the other for 48-volt motors.

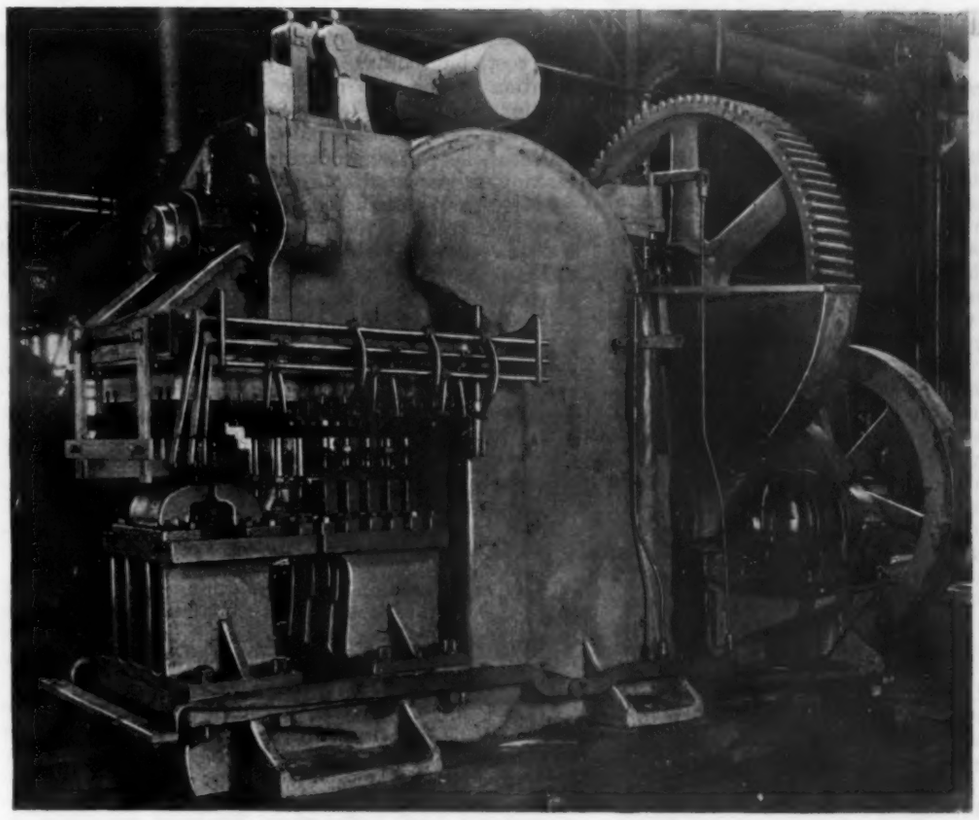
Truck Loader of High Capacity

George Haiss Mfg. Co., Inc., New York, is the maker of the truck loader here illustrated. It has a capacity of 4 cu. yd. per min. A bucket width of 37 in. is achieved by two strands of buckets mounted on four strands of chain. Power is furnished by a 37-hp. Waukesha engine, and a transmission box incloses the clutches and gears. The machine is equipped with caterpillar traction.

The elevator unit is pivoted on an A frame, and a raising and lowering device actuated by a hand wheel through a worm and gear jack knife makes it possible for one man to raise or lower the elevator. The loader clears a path 9 ft. wide, and the slow speed mechanism is designed to allow crowding into a pile at 39 in. per min. There is a 10 ft. clearance under the spout.

A series of management meetings held at Ohio State University, Columbus, late in October, is reported in detail in four pamphlets comprising No. 22 of Vol. 30 of the Ohio State University *Bulletin*. The proceedings appear in four parts. One covers production management and time studies; another, accounting; another, marketing, and the fourth, office management. Part II, which is that reporting the meetings on production management and time studies, is a pamphlet of 75 pages and includes papers by the following authors: E. H. Tingley, Delco-Light Co., Dayton, Ohio; Stephen DuBrul, Pyro Clay Products Co., Oak Hill, Ohio; J. D. Towne, Dayton Steel Foundries, Dayton, Ohio, and Willis Wissler, Bureau of Business Research, Ohio State University. Copies of the pamphlets may be obtained at 50c. apiece by addressing the Bureau of Business Research, College of Commerce and Journalism, Ohio State University.

This Haiss Truck Loader Has a Double Strand of Buckets, Giving a Bucket Width of 37 In.



Punch Has a Capacity of Four 1⅛-In. Holes Through 1-In. Plate

Punch for Structural Steel

A structural type punch, known as No. 11-B, designed to cover a wide range in fabricating structural steel, has been placed on the market by the Beatty Machine & Mfg. Co., Hammond, Ind. It will handle girder plates up to and including 48 in. in width; angles 8 x 8 x 1 in.; channels 3 in. and larger; I-beams from 3 to 30 in.; Bethlehem girder beams and H columns up to and including 14 in.

The main frame casting is of the box housing type, made of semi-steel, heavily reinforced. The sliding head or ram, of cast steel, is fitted with double T-slots for a double row of punching tools, with bearing slides bronze lined. The main shaft is of alloy steel with bearings bronze bushed. The clutch is of cast steel and all gears have cut teeth.

The shipping weight of the machine is 64,000 lb. Its rated capacity is punching four 1⅛-in. holes through 1-in. plate.

The cleaning of steel barrels and drums is the subject of a pamphlet that will be issued shortly by the Steel Barrel Manufacturers Institute, Cleveland. This will include information on different compounds for cleaning containers used for various kinds of material, suggestions as to economic ways of applying cleaning compounds and other information of interest to buyers of barrels that are re-used.

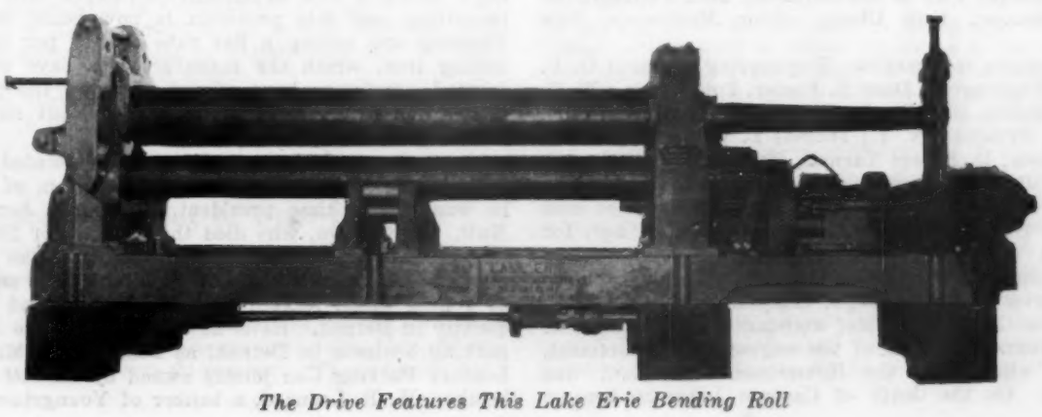
Plate Bending Roll Has New Drive

The accompanying illustration shows a horizontal pyramid type of bending roll of a capacity to handle 16 ft. of 1¼ in. plate. The rolls are 16 ft. 2 in. on the body. Top roll is 23 in. in diameter and the bottom rolls 16 in. The rolls themselves are forged steel with a smooth tooled finish on the body. The upper roll is fitted with balancing bar and outer drop bearing so that completed shells may be rolled. The bottom rolls are each provided with lining grooves.

The gearing on this machine is noteworthy in that the main motor drive gears are totally inclosed and of the cut herringbone type. There is also a single reduction of herringbone gears outside of the casing and the shrouded steel pinion on the lower rolls and the pinion driving them are the only cast gears in the train. This method of driving has been found to reduce the amount of power for rolling on account of the high efficiency thus provided in the operation of the gear train.

The screw-down motor is driven by a separate motor. The main drive motor is of 75 hp. capacity and the screw-down motor of 35 hp. capacity.

The bending roll was built by the Lake Erie Engineering Corporation, Perry Street, Buffalo, N. Y. It has also furnished this design of roll in a machine of 16 ft. length of ⅝ in. plate capacity and one of 20 ft. of 1⅛ in. capacity.



The Drive Features This Lake Erie Bending Roll

TARIFF COMMISSION

Recess Appointments—Ascertaining Costs of Production in Foreign Countries

WASHINGTON, July 12.—Opposition on the part of Senator Robinson, democrat, of Arkansas, and Senator LaFollette, progressive republican, of Wisconsin, prevented confirmation of Edgar B. Brossard, of Utah, and Sherman H. Lowell, of New York, as members of the Tariff Commission. Their names were brought up in the Senate on the last day of the recent session of Congress. About two hours after adjournment the President, who is reported to have been irritated at the failure of the Senate to confirm these appointments, named both men as members of the commission. The selection of Mr. Brossard was the second recess appointment given him; he has been on the commission since June of last year. Both Mr. Brossard and Mr. Lowell are republicans and so-called agricultural members of the commission. Mr. Lowell is a prominent grape grower in New York State and also president of the National Grange and the New York State Grange. Mr. Brossard is an agricultural economist.

Meanwhile the investigation of the Tariff Commission before a select committee of Congress continues under way and provides daily disclosures of the rows that have occurred within the commission. The differences of opinion for the most part are characteristic of the inherently political nature of the tariff question itself. The hearings also developed the differences of opinion in the commission regarding the flexible provision of the Tariff Act and the method of arriving at foreign costs of production, in connection with inquiries based upon applications seeking lower or higher duties under this provision.

Determining Foreign Costs

Commissioner Henry H. Glassie, at some length in testimony last week, spoke of methods of shortening processes of investigations and said that "in a number of them the commission has employed the invoice price, not because it (the commission) thinks the price is the cost, but because that price serves as a fair indication of the cost of the marginal producer in the foreign country, the one who is presumptively getting only that amount of gain which will keep him in the business, keep him producing, although others may be making larger profits in various degrees of margin."

Mr. Glassie discussed the attitude of the commission with regard to the pig iron inquiry, in which Eastern merchant blast furnace interests have sought an increase of 50 per cent in the tariff duty on this product. He also brought up the question of policy as to the release of the preliminary statement to the interested parties. He submitted a memorandum from Commissioner Costigan which the latter prepared on the eve of sending out the preliminary statement concerning the pig iron inquiry. Mr. Glassie said that this statement shows that Mr. Costigan questions the legal adequacy of the use of invoice data, in the absence of direct cost investigations abroad. The memorandum of Mr. Costigan continues:

Field Investigations of Cost Data

"My associates on the commission apparently never favored securing foreign costs by field investigations in the pig iron investigation, and it is conceded that reasons of economy were at hand to support their preferences for an attempt to use invoice data.

"As a result of the position of my associates when the pig iron investigation was reopened in 1925, the commission decided to proceed with the investigation, notwithstanding the fact that one or more commissioners, including myself, thought the procedure one of doubtful legal sufficiency. Stronger opposition to the progress was not developed, merely because it was realized that the field investigation would be expensive; that the amount of change in the duty which might be proclaimed by the President is relatively trifling; and that it may be well to have the legality of the use of invoice data determined at an early date."

C. M. Schwab to Head Mechanical Engineers

Charles M. Schwab, chairman Bethlehem Steel Corporation, New York, has been nominated for president of the American Society of Mechanical Engineers for 1927. Election will be by ballot of the entire membership, closing on Sept. 28.

Other nominees, as presented by the nominating committee of the society, are:

Vice-Presidents: Charles L. Newcomb, manager Deane Works, Worthington Pump & Machinery Corporation, Holyoke, Mass.; E. O. Eastwood, Professor Mechanical Engineering, University of Washington, Seattle; Edward R. Fish, vice-president Heine Boiler Co., St. Louis.

Managers: Paul Doty, chairman of board, Minnesota State Board of Registration, St. Paul; Ralph E. Flanders, manager Jones & Lamson Machine Co., Springfield, Vt.; Conrad N. Lauer, treasurer and general manager Day & Zimmermann, Inc., Philadelphia.

Treasurer: Erik Oberg, editor *Machinery*, New York.

Delegates to American Engineering Council: O. P. Hood, Washington; Dean E. Foster, Tulsa, Okla.; W. P. Hunt, Moline, Ill.; Charles Penrose, Philadelphia; E. N. Trump, Syracuse, N. Y.; Thomas L. Wilkinson, Davenport, Iowa; D. Robert Yarnall, Philadelphia; Walter S. Finlay, Jr., New York, and Ira W. Dye, Seattle, Wash.

Mr. Schwab's engineering experience may be said to date from 1881, when he was 19 years of age, for in that year he secured employment with Captain Jones, one of the superintendents of the Edgar Thomson works of the Carnegie company, driving stakes. In a year he became chief assistant and for the next seven years was chief of the engineering department, during which time the Homestead steel plant was erected. On the death of Captain Jones he became superintendent of the Edgar Thomson works, and in 1892 of the Homestead works also. Mr. Schwab became a member of the American Society of Mechanical Engineers in 1899 and was elected to honorary membership in 1918.

To Consider Union Puddling Scale July 14

Conferees representing the Western Bar Iron Association and the Amalgamated Association of Iron, Steel and Tin Workers, who adjourned in June at Atlantic City after failure to agree upon a new contract covering wages and working conditions for the 12 months beginning July 1, will convene again July 14, in Cleveland. In the meantime, the iron puddling rate of $11.38 per ton, effective in May-June, will be continued in July. Under terms of the old contract, boilers and muck mill hands continue at work for 30 days, unless a new agreement is entered into in the meantime, and this provision is now being invoked. Puddlers are asking a flat rate of $15 per ton for boiling iron, which the manufacturers have refused. Instead, employers have offered to renew the present sliding scale agreement in its entirety, but have not offered any increase in the base rate.

S. C. Leonard, Detroit, has been appointed secretary of the Western Bar Iron Association, of which he was at one time president, succeeding James H. Nutt, Youngstown, who died this year. For 22 years Mr. Leonard was connected with the American Car & Foundry Co., during most of that period as manager of rolling mills, located first in Chicago and subsequently in Detroit. He is now engaged in the leather packing business in Detroit, as head of the Michigan Leather Packing Co., jointly owned by himself and a brother, W. R. Leonard, a banker of Youngstown.

CHILEAN STEEL PLANT

No Decision Yet on Steel-Making Process—Mill Machinery on Hand for Years

The Compañia Electro Siderurgica e Industrial de Valdivia, which, as noted in THE IRON AGE of June 24, page 1828, is to spend between $4,000,000 and $5,000,000 on a steel plant and a hydroelectric plant in Chile, is a new venture only so far as the power development is concerned. In 1909, the owners of the Tofo iron mines in Northern Chile contracted with a French company to build blast furnaces, steel works and rolling mills at Corral, on a bay a short distance south of Valdivia, chief of Chile's industrial centers.

A company known as Compañia Altos Homos de Corral, organized in 1910, built an unloading dock, for ore brought down by river from the Tofo mines, and two special type blast furnaces, so designed that they were not only to reduce the ore, but in an upper part were to make charcoal from wood brought in from the nearby hills. The furnaces were completed, but on the first test it was found that it took twice as long to reduce the wood to charcoal as the ore to iron.

Mill Machinery Lay Long in Boxes

While the mill buildings were completed, and the mill machinery was delivered, it was never unboxed, as failure of the special type blast furnaces meant starting all over in finding a fuel to reduce the ore. The project lay dormant for several years and in the meantime the ore mines were leased to the Bethlehem Chile Iron Mines Co., subsidiary of the Bethlehem Steel Corporation. The owners, however, retained an option on a tonnage of the ore. This option was included in the purchase of the steel works property by the new owners, who, with the electric power development at Valdivia, will install electric furnaces for the reduction of the ore.

The steel process to be used is yet to be determined. The phosphorus content of the ore forbids the use of the acid Bessemer process. There is left the basic open-hearth or basic electric furnace and, until experiments have been conducted and costs determined, there will be no decision in the matter.

The rolling mills comprise one 18-in. and one 10-in. merchant mill, which will be modernized and brought up to date. The mill buildings also will be altered to permit the installation of cranes and other labor-saving machinery. The product of the plant will be reinforcing and ordinary merchant bars and light structural shapes.

The Engineers Corporation, an affiliated interest of the J. G. White Co., New York, has contract for the entire work, and Barton R. Shover, 424 Oliver Building, Pittsburgh, who has had a wide experience in iron, steel and electrical plant construction, has been retained as consulting engineer.

Iron and Steel Credited with Large Share in South's Economic Renaissance

WASHINGTON, July 12.—The industrial development of the South, described as an "economic renaissance," is largely ascribable to water power and to iron and steel, according to Secretary of Commerce Hoover. The development in that section, he stated, has been characterized by population migration southward. The Secretary pointed out that migration, which has always been westward in the history of this country, in recent years has turned distinctly to the South. The movement of people southward, in the opinion of Mr. Hoover, is not alone the cause of the South's industrial development.

He observed that, despite additions to southern populations from other parts of the country and the growth of its industries, the control of southern business seems to remain in the South's hands. The Secretary said that residence in Florida undoubtedly had its effect on the population movement. He also declared that North Carolina has "probably made a greater advance in a period of 15 years than any other State in the Union in the same length of time." The Secretary declared that North Carolina's development has been widespread, while Alabama has been largely localized and centralized.

Some Recovery in Galvanized Ware

WASHINGTON, July 10.—May production of galvanized sheet metalware, as reported by 12 concerns comprising a large proportion of the industry, was 153,497 dozens, valued at $573,116, as compared with 136,141 dozens, valued at $490,992 in April, according to the Department of Commerce. The galvanized ware included in the statement is the product resulting from dipping made-up shapes in molten zinc, and not utensils made of galvanized sheets.

Both April and May fell far below the three earliest months of the year, each of which showed more than $630,000 of products.

Record Output of Fuel Briquets

Production of fuel briquets in 1925 is reported by the United States Bureau of Mines to have aggregated 839,370 net tons, valued at $7,128,404, compared with 580,470 tons in 1924, valued at $4,986,622. Increase was 45 per cent. The increase over 1923—the previous high record year—was 20 per cent. These figures have been compiled from 1907 onward, showing steady increase, with an occasional brief set back.

Monthly production last year showed great variation, the maximum output having been in December, 128,684 tons, while a minimum of 26,350 tons was given for May.

World production for 1921 to 1925, inclusive, is tabulated on the last page of the pamphlet, but no total estimates are given. Germany apparently produced each year more than all other countries combined. Her total for 1925 was 38,636,182 metric tons. France, in second place, showed 3,653,703 tons and Belgium, 2,250,840 tons. The pamphlet may be obtained for 5c. from the Superintendent of Documents, Government Printing Office, Washington.

Ferro-Silicon-Aluminum Tariff Is Re-Classified

WASHINGTON, July 13.—Ferro-silicon-aluminum has been placed definitely in the class of alloys used in the manufacture of steel under paragraph 302 of the existing tariff act and made dutiable at 25 per cent ad valorem, instead of under paragraph 374, carrying a rate of 5c. per lb., raw, or 9c. in scrap or plate.

The decision was made public in a letter addressed to the United States appraiser of merchandise at Philadelphia by Assistant Secretary of the Treasury L. C. Andrews. The question concerned the method of composing the mixture of the metals. There had been a variance of practices at different ports in assessing duties on imports of this metal. The Treasury Department letter explained that the material is composed of aluminum, 47.2 per cent; iron, 7.12 per cent; carbon, 5.83 per cent, and silicon (approximately), 39.80 per cent. The appraiser at Philadelphia expressed the opinion that the provision in paragraph 374, that "alloys of any kind in which aluminum is the component material of chief value," is more specific than the provision in paragraph 302 for all alloys used in the manufacture of steel not specially provided for.

Average weekly earnings in factories in the State of New York are reported by the Industrial Commissioner to have been $28.69 per week during April. This shows a decline of 34c. from the average for March and of 36c. from the highest average ever recorded, which was the $29.05 prevailing in both December and January last. Except for the three larger months just mentioned, the figure for April has been exceeded only five times, with $28.70 to $28.93 per week, in 1920.

WANTS FREIGHT RATE CUT

Sharpsville Furnace Co. Wants Relief from Present Charge to Butler, Pa.

A fresh effort of Shenango Valley pig iron producers to widen their markets through a downward revision of freight rates is seen in the filing on July 9, with the Public Service Commission of Pennsylvania, by the Sharpsville Furnace Co., Sharpsville, Pa., of a complaint against and asking relief from a charge of $1.76 per gross ton on pig iron from Sharpsville to Butler, Pa. The Baltimore & Ohio, the Bessemer & Lake Erie, the Buffalo, Rochester & Pittsburgh, Erie, New York Central, Pennsylvania, and Pittsburgh & Lake Erie railroads are named as defendants in the complaint, which asks the commission to grant relief through a lower rate on the ground that other producing centers, such as the Mahoning Valley in Ohio, Midland, Pa., and Monessen, although farther removed from Butler than is Sharpsville, are able to ship to Butler on the same rate of freight as Sharpsville. The haul from Sharpsville to Butler, the complaint suggests, is much shorter than from any of the several other producing centers, and on that basis the commission is asked to declare that the common rate of $1.76 per ton is excessive and unreasonable, and that it order a reduction to a rate that is in keeping with the service rendered on the shorter haul from Sharpsville to Butler, as compared with that from more distant points.

It will be recalled that when the Ohio Public Utilities Commission granted to Cleveland furnaces a rate of $1.26 per gross ton to Canton and near-by territory, thus putting Cleveland on an even basis with the Youngstown district furnaces into the Canton territory, an effort was made by furnace interests in the Shenango Valley district, which being in Pennsylvania were not affected by the Ohio commission order, to get the railroads to extend the lower rate to the Shenango Valley, by restoring a former group rate that included both the Mahoning and Shenango Valleys on shipments to and near Canton, Ohio.

All that ever developed from that request was a petition submitted by one road to the Central Freight Association, asking for permission to reduce the rate from the Shenango Valley to Butler from $1.76 to $1.39. The Central Freight Association rejected the petition. In the meantime, efforts have been made, but without success, to get the Ohio commission to rescind its $1.26 rate from Cleveland and Youngstown to Canton, and Shenango Valley furnaces not only have had to absorb the 50c. per ton of freight to get to Canton on an even basis with Mahoning Valley and Cleveland furnaces, but have had no advantage over Mahoning Valley furnaces on freight charges on shipments to and toward Pittsburgh.

To Suggest Plan for American Merchant Marine

WASHINGTON, July 13.—Making an earnest plea for the establishment of a permanent privately owned and privately operated American merchant marine, Senator Wesley L. Jones, of Washington, succeeded in having the Senate agree to a resolution requesting the Shipping Board to report to the Senate by Jan. 1, 1927. The resolution was agreed to on the day Congress adjourned, and provides that the Shipping Board, in conjunction with the Department of Commerce, shall consider without delay a concrete plan for such a mercantile fleet. It will be the purpose of the study to suggest a plan which will induce private capital and energy to go into the shipping field in such a way as to insure a merchant marine which, Senator Jones said, the United States should have to care for its commerce and insure national security. The study also will call for the submission of an alternative plan and program for the Government to adopt if it should be found necessary for the Government to do so.

Senator Jones declared that lack of American shipping facilities cost American business approximately $1,000,000,000 when the World War broke out.

Lake Ore Movement in June

Lake Superior iron ore shipments from the upper Lake ports in June were 8,770,493 gross tons, or 812,007 tons more than those for June, 1925, an increase of 10.20 per cent. The total season shipments to July 1 were 14,893,138 tons, which is 3,500,047 tons less than the season shipments a year ago, a decrease of 19.03 per cent. The shipments by ports and for the season in 1926 and 1925 have been as follows in gross tons:

	June, 1926	June, 1925	To July 1 1926	To July 1 1925
Escanaba	1,038,319	673,307	1,801,231	1,799,536
Marquette	502,011	435,440	790,592	950,816
Ashland	1,148,385	934,953	1,899,832	2,119,973
Superior	2,363,930	2,273,407	3,928,655	4,982,468
Duluth	2,752,947	2,801,562	4,776,234	6,421,034
Two Harbors	964,901	839,817	1,696,594	2,119,358
Total	8,770,493	7,958,486	14,893,138	18,393,185

Of the season shipments this year, Great Northern's proportion has been only 23.16 per cent compared with 24.86 per cent a year ago. Duluth's percentage this year has been 32.07 per cent of the total against 34.91 per cent last year.

June Decrease in Unfilled Orders Another Moderate One

The decrease in the unfilled orders of the United States Steel Corporation as of June 30 was the smallest of those since January. The total unfilled business on the last day of June amounted to 3,478,642 tons, a decrease of 170,608 tons from the total of 3,649,250 tons on May 31. This is the sixth decrease in the six consecutive months. The largest decrease was 511,959 tons in April and the smallest was 150,625 tons in January. A year ago the unfilled business was 3,710,458 tons, or 231,816 tons more than at the end of June, this year. The following table gives the unfilled tonnage as reported by months beginning with January, 1924:

	1926	1925	1924
Jan. 31	4,882,739	5,037,323	4,798,429
Feb. 28	4,616,822	5,284,771	4,912,901
March 31	4,379,935	4,863,564	4,782,807
April 30	3,867,976	4,446,568	4,208,447
May 31	3,649,250	4,049,800	3,628,089
June 30	3,478,642	3,710,458	3,262,505
July 31	.....	3,539,467	3,187,072
Aug. 31	.....	3,512,803	3,289,577
Sept. 30	.....	3,717,297	3,473,780
Oct. 31	.....	4,109,183	3,525,270
Nov. 30	.....	4,581,780	4,031,969
Dec. 31	.....	5,033,364	4,816,676

The high record in unfilled orders was 12,183,093 tons at the close of April, 1917. The lowest was 2,674,757 tons on Dec. 31, 1910.

Ask Lower Rates on Cast Iron Pipe

WASHINGTON, July 13.—Complaint has been filed with the Interstate Commerce Commission by the Florence Pipe Foundry & Machine Co. and R. D. Wood & Co. against railroad rates on cast iron pipe and fittings in carloads from Florence, N. J., to points east of the Mississippi River. It is charged that they are unjust and unreasonable and that lower rates are accorded competitors in the Birmingham group; Chattanooga and South Pittsburgh, Tenn.; Lynchburg, Va.; Baltimore, Scottdale, Pa., and at other points in Ohio and Indiana. It is also alleged that lower rates are accorded more fragile and valuable commodities between practically the same points as those involved in the complaint.

Twelve open-hearth charging cars of a special type have been built by the Wellman-Seaver-Morgan Co., Cleveland, for the Sharon Steel Hoop Co., Sharon, Pa. The cars are of four-box capacity, have cast steel frames and are equipped with roller bearings.

Foundry Program Has Wide Range

Technical Papers for Annual Convention—Several Foreign Contributions —Symposium on Permanent Molds

THE program committee of the American Foundrymen's Association announces its tentative schedule for the thirtieth annual convention and second international foundrymen's congress to be held in Detroit the week of Sept. 27. The program includes papers by American and European writers dealing with the latest researches and developments in cast iron, steel, malleable and non-ferrous fields. The feature of the convention will be a symposium on permanent and long life molds. The program as tentatively arranged is as follows:

MONDAY, SEPT. 27

1.30 p. m.—Opening Meeting. Addresses of Welcome and Responses.

3 p. m.—Non-Ferrous Metals.—Joint Meeting of A. F. A. and Institute of Metals Division.

"Constitution of Aluminum-Zinc-Tin Alloys and Aluminum-Zinc-Cadmium Alloys," by Dr. V. Jares, Technical School, Prague.—Exchange Paper of Czecho-Slovak Foundry Association.

"Aluminum-Alloy Permanent Mold Castings," by Dr. R. J. Anderson, Cleveland.

3 p. m.—Materials Handling:

"Materials Handling in a Foundry," by E. T. Bennington, Cleveland Crane & Engineering Co., Cleveland.

"Saving Foundry Materials Handling," by H. J. Payne, Society for Electrical Development, New York.

3 p. m.—Core Binders and Cores:

"Core Oil Specifications," by V. A. Crosby, Studebaker Corporation, South Bend, Ind.

"Core Binders Investigation," by H. L. Campbell, University of Michigan, Ann Arbor, Mich.

"Core Sand Mixture Tests," by C. A. Hansen, General Electric Co., Schenectady, N. Y.

TUESDAY, SEPT. 28

10 a. m.—Steel Founding:

"Defects in Steel Castings," by J. M. Sampson, General Electric Co., Schenectady, N. Y.

Contribution by R. A. Bull, Electric Steel Founders' Research Group, Chicago.

10 a. m.—Temperature Determination in the Non-Ferrous Foundry—A Symposium. Joint Meeting of A. F. A. and Institute of Metals Division.

A. A. Grubb, Ohio Brass Co., Mansfield, Ohio.

H. M. St. John, Detroit Lubricator Co., Detroit.

Kirtland Marsh, Aluminum Co. of America, New Kensington, Pa.

R. R. Clarke, General Electric Co., Erie, Pa.

Representative, United States Bureau of Standards, Washington.

A. S. Hall, Thwing Instrument Co., Philadelphia.

R. D. Bean, Brown Instrument Co., Philadelphia.

10 a. m.—Apprentice Training:

Discussion of Apprentice Training.

12.15 p. m.—Round Table on Brass Foundry Topics:

Luncheon meeting and informal discussion. Joint Meeting of A. F. A. and Institute of Metals Division.

2 p. m.—Permanent and Long Life Molds—A Symposium:

J. E. Hurst, Newton, Chambers & Co., Ltd., Sheffield, England.

H. A. Schwartz, Cleveland.

Leon Cammen, American Society of Mechanical Engineers, New York.

S. M. Udale and H. P. Kimber, Holley Carbureter Co., Detroit, Mich.

James A. Murphy, Hamilton, Ohio.

Dr. Richard Moldenke, Watchung, N. J.

2 p. m.—Cupola Practice:

"Melting All Steel Heats in the Cupola," by T. F. Jennings, Garfield Copper Co., Garfield, Utah.

"A Study of Iron Melted in the Cupola," by R. E. Wendt and J. P. Walsted, Purdue University, Lafayette, Ind.

"Use of Continuous Iron Temperature Charts in Improving Cupola Practice," by H. W. Dietert, United States Radiator Corporation, Detroit.

"Cupola Practice in a Continuous Foundry," by H. Rayner, Dodge Brothers, Detroit.

WEDNESDAY, SEPT. 29

10 a. m.—Steel Foundry Metallurgy:

"Open-Hearth Slags," by W. C. Hamilton, American Steel Foundries, Granite City, Ill.

"Manufacture of Manganese Steel for Castings," by John Howe Hall, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

10 a. m.—Testing Cast Iron:

"A Shearing Test for Cast Iron," by G. K. Elliott, Lunkenheimer Co., Cincinnati.

"Test of Cast Iron," by W. Rother, Buffalo Foundry & Machine Co., Buffalo.

"Some Further Gray Iron Problems," by John Shaw, Brightside Foundry & Engineering Co., Sheffield, England. Exchange Paper of the Institute of British Foundrymen.

"Testing Iron," by M. le Thomas, Paris, France. Exchange paper of the French Foundry Technical Association.

10 a. m.—Malleable Cast Iron:

"Some Controversial Matters Pertaining to Malleable Iron Castings," by Enrique Touceda, Albany, N. Y.

"What May Be Required of Malleable Cast Iron," by H. A. Schwartz, National Malleable & Steel Casting Co., Cleveland.

10 a. m.—Casting Nickel Alloys:

Meeting of Institute of Metals Division, A. I. M. and M. E.

2 p. m.—Foundry Costs:

Discussion of general needs for foundry cost methods and exposition of a specific foundry cost system for practical use.

2 p. m.—Foundry Refractories:

Report of the chairman of the joint committee on foundry refractories.

Report of sub-committees on survey of service conditions.

a. Steel foundries.

b. Malleable foundries.

c. Cast iron foundries.

Report of sub-committee on testing and specifications.

Report of sub-committee on standardization and simplification.

Discussion of foundry refractories.

THURSDAY, SEPT. 30

10 a. m.—Foundry Sand Control:

Reports of sub-committee of joint committee on molding sand research.

Discussion of methods for practical shop control of foundry sand conditions.

12.15 p. m.—Round Table Malleable Foundry Problems:

Luncheon meeting and informal discussion of malleable foundry topics.

1.30 p. m.—Business Meeting.

2.30 p. m.—Cast Iron:

"The Dilatometric Analysis of Iron," by A. Portevin and P. Chevenard, Exchange paper of the French Foundry Association.

"Heat Resistant Cast Irons," by Oliver Smalley, New York.

"The Perfecting of Pig Iron," by Dr. Piwowarsky, Technical High School, Aix la Chapelle, Germany, contributed on behalf of the German Foundrymen's Association.

"Phosphorus in Cast Iron," by J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham.

"Chaplets in Heavy Iron Castings," by Ivan Lamoureux, Exchange paper of the Belgium Technical Foundry Association.

2.30 p. m.—Elimination of Waste in the Foundry Industry:

Discussion of possibilities of elimination of waste.

Report of committee on pattern equipment standardization.

Report of committee on corrosion of metals.

FRIDAY, OCT. 1

10 a. m.—Foundry Sand Control:

"Metallurgical Control of Foundry Sands," by L. B. Thomas, Fairbanks Morse Co., Beloit, Wis.

"Grading Foundry Sands," by C. A. Hansen, General Electric Co., Schenectady, N. Y.

"Foundry Sand Control," by O. E. J. Abrahamson, American Radiator Co., Buffalo.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Statistical Data Concerning the Chief Consuming Industries Indicate That:

1. Sales of finished steel are well above a year ago.

2. Trend in chief consuming industries diverges from the high rate of steel ingot production, suggesting possible maladjustments.

3. Some gain in equipment buying, but low level of railroad tonnage for the season, and large car surplus, indicate no pressing requirements.

4. Structural steel sales likely to decline, due to smaller building activity.

5. Automobile production holds at fairly high level. Average production in manufacturing industries declining.

6. Oil and mining activity contributing full quota to demand.

7. Decline in exports reverses trend.

ALMOST interesting and critical situation appears to confront steel producers. Although there has been an entire absence of any shortage, they have succeeded in marking up the price of bars and shapes, and are currently reported to have considered advances on other products. As a result, they have succeeded in driving in much business during June, and have maintained production schedules at a high level. The question now is: Has the demand for the next quarter been sufficiently satisfied to cause a sharp decline in buying during the next few months?

It appears that most large buyers have protected themselves for the entire third quarter. Evidence will be presented below to the effect that the consumption of iron and steel is now on the down-grade. It seems highly probable that July orders will show a sharp slump. Does the increased buying toward the end of June not represent an unusually large anticipation of requirements, which will result in much less buying later on? For a long while the buying of steel has been largely from hand to mouth. It is not believed that the June price mark-up can do more than cause a small temporary change in this respect, and, with production running very high for the season, steel producers will find increasing difficulty in making the nominally higher prices effective on the reduced current business which is probable during July and August.

Ingot Production Exceeds Demand

FOR the first time in over a year steel ingot production has become excessive when judged by the trend of activity in iron and steel consuming industries. This fact is shown graphically in the first chart, where it appears that the composite steel demand line has fallen below the curve of ingot production. The composite demand curve cannot be computed beyond May, but there is every indication that it will show a further decline when complete June data are available, thus increasing the excess of production over the potential demand.

From the record December peak of activity in the chief steel-using industries, there has been a decline until in May the lowest point was reached since June last year. The indications are that the requirements for steel should be running about the same as in the spring of 1925. On the other hand, the current additions to supply, judged by ingot production, have declined little since the December peak, and production in June decreased much less than usual, thus causing a rise in our adjusted curve. As a result, production is considerably larger than a year ago.

Statisticians are loath to arrive at conclusions that run counter to the current favorable sentiment in the trade, and we are fully informed of recent good buying of iron and steel. Nevertheless, it is a cold statistical fact that *the trend of activity in the chief iron and steel consuming industries is not such as can support production at the current rate.* Both logic and past performance indicate the probability that a sharper curtailment of steel output will be required in another month or two than has occurred since the early part of last year. Possibly something like 1923 is in prospect.

Of course there is a possibility that a spurt in industrial activity may occur in the fall, which would be a development similar to the upturn toward the end of 1923. That, however, is still highly uncertain, and if such an upturn is to take place it may well turn

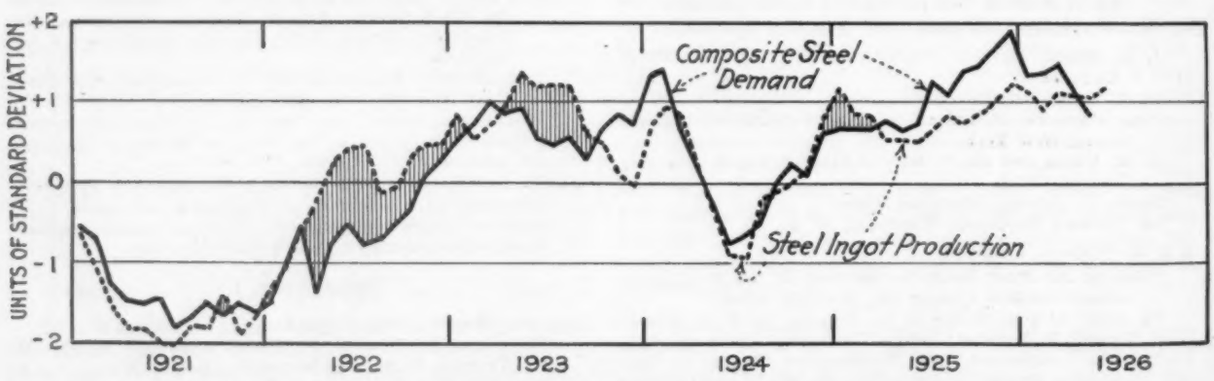


Fig. 1—The Composite Curve of Steel Demand, While Still High, Has Fallen Well Below the Curve of Steel Ingot Production. There is no immediate prospect of an upturn

In This Issue

Can one coke plant serve satisfactorily two separate groups of blast furnaces?—Donner-Hanna found that coke used successfully by one group was far from satisfactory to the other. Two kinds of coke are now made in the same plant, resulting in notable improvements in the performance of both groups of furnaces.—Page 145.

German Government's venture into the credit insurance business is meeting with little success.—Designed to aid exporters, it is hampering them by inexpeditious action on applications. Private insurance companies charge nothing for credit information and act faster.—Page 189.

New record in steel output for first half of year.—Total was 24,260,537 tons for first half. June output of 144,256 gross tons daily was 4.8 per cent under May.—Page 144.

Germans selling iron in America $4 *to* $6.50 *under their quotations in own country, Eastern pig iron producers allege.*—Urge immediate enforcement of Anti-Dumping Act.—Page 160.

Foundry skip hoist takes the place of six men.—Melt is increased more than 40 per cent, while labor cost is lower.—Page 139.

Why not dissolve scrap iron rubbish in acid and recover it electrically?, engineer inquires.—Everything from tin cans to automobiles, which now litter the landscape, could be dissolved in large tanks of iron solvent maintained at convenient places.—Page 141.

Rimming steel to be top cast needs a more vigorous boil.—As bottom-casting permits easier escape of gases, the boil in the furnace need not be so active.—Page 143.

New hypoid gears can be produced at about the same cost as spiral bevels.—And can be made on the same equipment with minor change.—Page 147.

Higher duty on pig iron?—In considering the matter, the Tariff Commission is using invoice prices because production cost data on foreign iron is costly and difficult to obtain.—Page 150.

Will steel buying decline for the remainder of the third quarter?—Most of the large buyers are protected for the quarter, says Dr. Haney, looking for a considerable falling off in buying.—Page 154.

June building contracts high.—In 37 States the total of building and engineering contracts was $547,800,000, only 1 per cent below May.—Page 144.

Unfilled steel orders decline in June.—Steel Corporation's unfilled tonnage at July 1 was 3,478,642, a falling off of 170,608 tons from June 1.—Page 152.

Foundrymen plan instruction on wide range of subjects at annual convention.—Symposium on permanent and long life molds is to be feature of thirtieth annual meeting to be held in Detroit the week of Sept. 27.—Page 153.

Heavier coke brought these blast furnaces out of the red ink column.—"The coke is too light and not dense enough," said the operating manager. A change in the fuel immediately resulted in higher output and lower fuel consumption.—Page 193.

". . . the stock market is no longer a reliable barometer of developments in business."—New economic conditions have displaced Wall Street from its erstwhile position as the bellwether of business.—Page 162.

See that your executives take vacations.—One manufacturing firm has found that it pays to insist upon adequate vacations for men in the higher executive positions. The man who refuses to take a vacation frequently loses through illness much more time than would be spent for an annual rest and change of scene.—Page 163.

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Balancing the Reader's Interest

NOT every article in THE IRON AGE can be expected to interest each and every one of our readers. Hence the effort is to place material of varied appeal in each issue. In the three July issues to date we have had eighteen "major" articles, dealing with coke, metallurgy, foundry practice and equipment, rolling mills, a new type of gear, defects in castings, the situation in Russia and in England, and such matters as outputs, exports and imports.

Altogether, that makes an imposing list. But to it, entirely aside from 75 or 80 pages of market news, 10 of editorials and our Business Analysis and Forecast, we have added nearly 150 items of business news on a multitude of topics, nearly 20 descriptions of new equipment, and some 100 items of personal mention, some of them affecting several individuals.

Summer issues of general magazines commonly go in strong for fiction. If any of ours do at any season, they must be problem novels.

For News Summary See Reverse Side

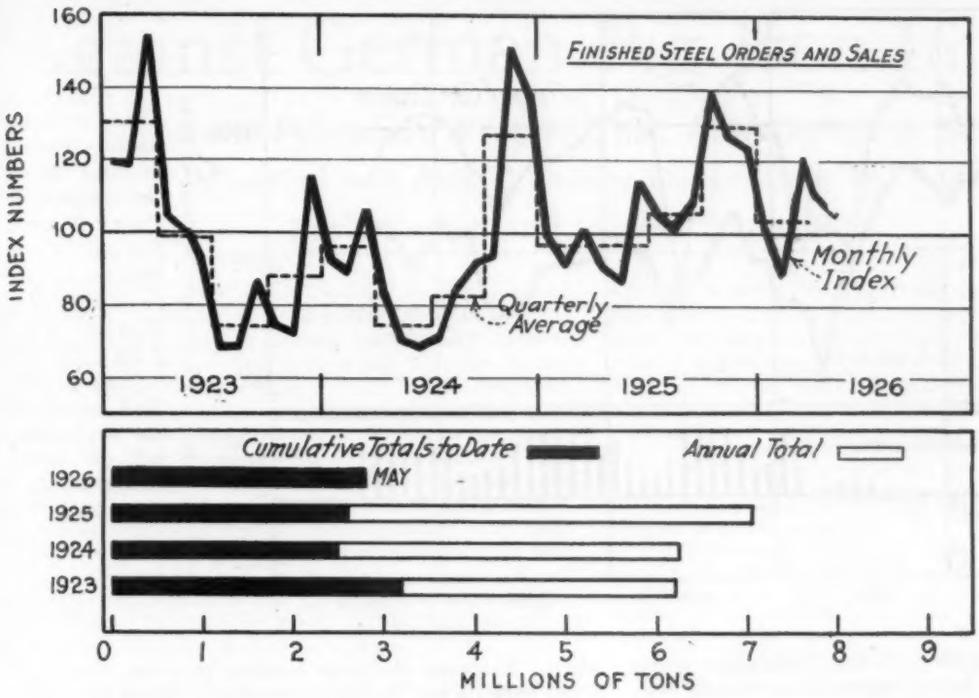

Fig. 2—Finished Steel Orders and Sales Have Done Well So Far This Year. The adjusted monthly index number has maintained its level above previous May figures and the cumulative total is much the largest of any year since 1923

out to be inflationary in character and short in duration.

In view of the recent large amount of buying, the question naturally arises: How can the activity of iron and steel consuming industries be on the decline? Briefly, the facts are as follows:

In Particular Industries

Railroad freight traffic is probably less than 3 per cent greater than a year ago and has shown less than the usual seasonal gains. Preliminary June data indicate a little recovery, but nothing striking. There are no indications of a fall peak in railroad traffic that will be greater than that of 1925. The railroads have a large surplus of equipment which is in fairly good shape. Thus, while their earnings are a little greater than last year, due to economy in operation, their requirements are on the whole certainly no larger, and the current moderate recession in business does not suggest much increase in railroad buying.

The outlook for **building** activity continues to grow more unfavorable. There has been a steady decline for several months in building permits and in contracts awarded, making due allowance for the merely seasonal ups and downs. Preliminary June figures indicate that not only did new building contracts fall off, but that they actually reached a smaller total than a year ago. While, therefore, actual building operations have been very large, the prospect is for a steady decline.

Automobile production also, though it has declined, has been large in comparison with past years. Doubtless, too, the trend toward new models will stimulate production for a time. This very trend, however, is an indication of the highly competitive condition that exists in the automobile industry. It is probable that a critical time lies ahead, during which low profits and the used-car problem will be much in evidence. How soon the crisis will be reached is difficult to say, but it is more than doubtful that the industry can be relied upon to support the present rate of steel production. The fact that employment in Detroit is 23,000 under a year ago is significant.

The **oil and mining** industries have been contributing their full quota to the demand. This is particularly true of drilling activity in the petroleum fields, where it is indicated that already the peak levels of the last two years have been approached, which means a large demand for casing and pipe.

General **manufacturing** activity was curtailed rather sharply in May, and the June figures will show probably a further decline. The **farm** outlook is highly uncertain, the present indications being that crops will be rather good, but that prices will not be satisfactory.

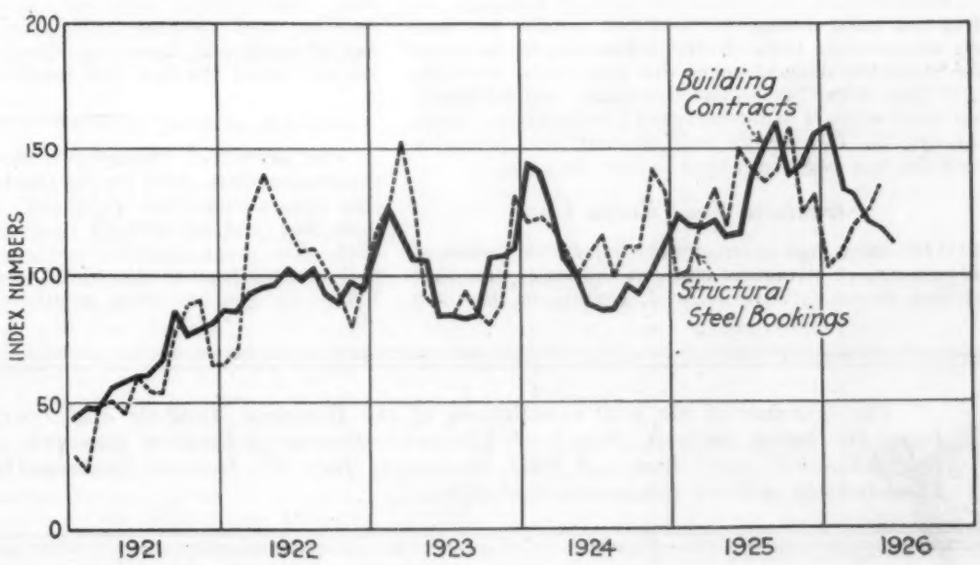

Fig. 3—Bookings of Structural Steel and the Curve of Building Contracts Awarded Have Crossed and Are Moving Rapidly in Opposed Directions. Heavy bridge and other construction work not measurable in terms of floor space largely accounts for the up-movement in structural steel

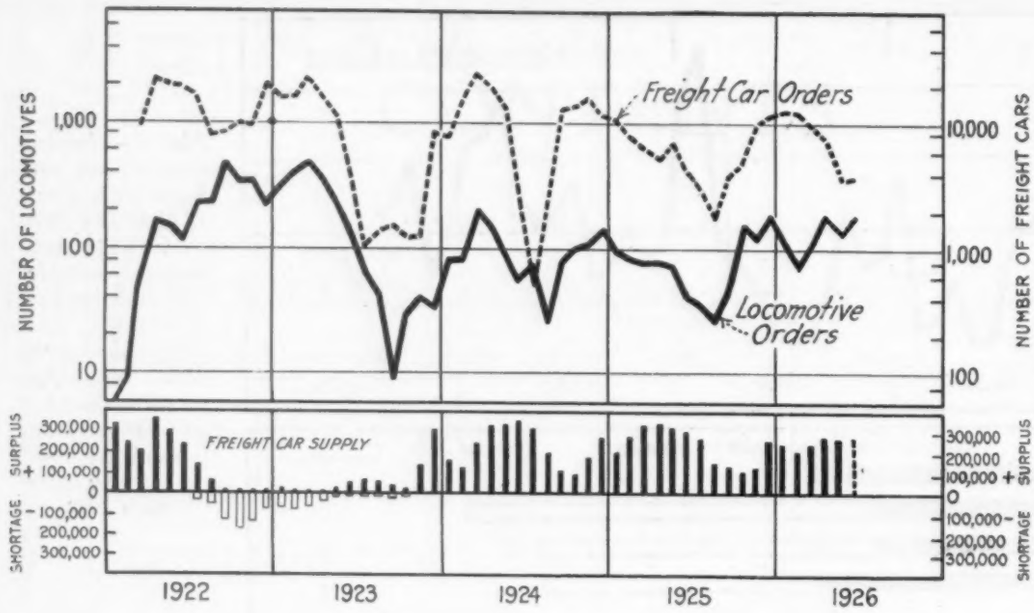

Fig. 4 — Locomotive Orders in June Were the Largest in Four Years; Freight Car Business in June Was the Highest for That Month Since 1922. Both curves are here plotted as a 3-month moving average

Exports of iron and steel have been materially larger than a year ago, but fell off much more sharply than usual in May, which is the latest month covered by official figures.

Thus the reasons for the drop in the composite steel demand line are clear, and it is apparent that the outlook for the next few months is not such as to cause optimism concerning an early upturn.

Finished Steel Orders High

THE barometer of bookings of finished steel shows that a high level existed in March, April, and May, May showing the largest orders for that month recorded in the chart. At the end—that is, in May—the trend was down, much as was the case a year ago. Probably, however, there will be an increase in June such as occurred in 1922 and 1925. The question is: Will the June spurt be the beginning of a sustained upturn in bookings and orders?

This does not seem probable. In 1922, and again in 1925, the steel business confronted periods of general industrial expansion, and the composite demand curve was on the upgrade. According to our recollection, moreover, the increased buying in those years was not "driven in" by price tactics, as has been the case to a considerable extent this June.

It may be noted that the high level of structural steel bookings in May did not continue through June and, with new building contracts declining, it does not seem probable that structural steel will be in such great demand during the coming months.

Nevertheless, the cumulative total of bookings, orders and sales during the first five months has been the largest since 1923. In this connection we note that the composite demand curve this year looks more like 1923 than either of the last two years, and its declining trend appears to forecast that the cumulative totals through the fall months will compare less favorably with the last two years than is now the case.

Structural Steel Keeps Up

THAT there has been another month of increased bookings of structural steel, at the same time that building contracts have declined, appears in the third chart. Evidently the large building program, resulting from permits and contracts arranged during the winter, is being carried on; also a large quantity of structural steel has been booked for construction other than "building." This is the first time in at least five years that there has been such a pronounced divergence between the trend of our building curve and the index of structural steel bookings.

It is highly improbable that such a divergence can be long continued. We know that in June new building contracts continued to decline, and it is also true that June structural lettings were at a lower rate than in May. Current weekly reports indicate an average weekly rate of a little over 31,000 tons in June against more than 37,000 tons in May. We venture to predict a significant decrease in the volume of structural steel business.

June Car and Locomotive Orders

RAILROAD equipment is a story briefly told. June freight car orders showed a good seasonal increase and were the largest for that month since 1922. But it continues true that freight-car buying during the first half of the year has been small, and pending inquiries do not yet show much improvement.

Locomotive orders in June were the largest in four years, and the trend of such orders, though not rising as in 1922, is well sustained. In the first five months of this year the Class 1 railroads installed 933 locomotives, which is 185 more than were installed in the same period of 1925. Of course there is the possibility that railroad policy may dictate supporting orders for steel. Neither traffic requirements nor shortage of equipment, however, necessitate an increase in buying during the next few months.

The payroll of Youngstown industries has topped the seven-million mark for the third consecutive month. The June amount was $7,134,372, a gain of $126,188 over May and of $469,285 over the same month in 1925. The wage distribution through banks the first half of 1926 totaled $41,640,093, comparing with $40,116,081 for the first sixth months of 1925.

The schedule of the next installments of the ***Business Analysis and Forecast,*** *by Dr. Lewis H. Haney, Director, New York University Bureau of Business Research, is as follows:* ***July 22****—Position of Iron and Steel Producers;* ***July 29****—General Business Outlook;* ***Aug. 12****—Activity in Steel Consuming Industries.*

Against German Pig Iron Imports

Eastern Producers Protest That Anti-Dumping Act Is Violated and Ask Treasury Department to Take Early Action and Impose Extra Duty

WASHINGTON, July 13.—Various communications from domestic pig iron producers are now before the Treasury Department, protesting against importations of German pig iron on the ground that they are in violation of the anti-dumping act of 1921. In THE IRON AGE of June 24, page 1828, was printed a letter to the Secretary of the Treasury from C. E. Bertie, secretary of the Virginia Pig Iron Association, Roanoke, Va., asking that the matter be looked into, the association expressing the belief that German iron is being sold in the United States at a comparatively lower price than prevails in Germany and at a lower price than the cost of producing similar iron in the United States. Below are given two letters on the same subject addressed to the Treasury Department by E. O. Marting, president Witherbee, Sherman & Co., Port Henry, N. Y.:

Germany's Exports to United States Next to the Largest

PORT HENRY, N. Y., May 26, 1926.

Secretary of the Treasury, Washington, D. C.

DEAR SIR:—We beg to call your attention to the subject of the importation of pig iron into the United States from Germany. During January and February, 1926, official reports of the Department of Commerce indicate that 25,264 tons of pig iron was imported from Germany. A comparison of this figure with the amount imported from other countries during the same period shows that Germany is the second largest exporter of pig iron to the United States. Most of this pig iron is imported into the United States at the ports of Boston, New York, Philadelphia and Baltimore and such importations are becoming a serious problem to the producers of pig iron in the eastern part of the United States.

We believe, on the basis of the information hereinafter set forth, that the importation of German pig iron into the United States involves a violation of the anti-dumping act of 1921.

German pig iron is sold laid down, duty paid, at the above mentioned ports at prices ranging from $20.25 to $21.50. These prices can be confirmed by examining any number of THE IRON AGE or the *Iron Trade Review*, the two leading iron and steel trade journals published in the United States. Furthermore, these prices can be confirmed by an investigation of the offers made by numerous brokers at the above mentioned ports. Sales at these prices are common knowledge and are repeatedly reported in the press. These prices are lower than those regularly offered by American domestic producers.

German Domestic Prices Same as for Iron Delivered in United States

The domestic price of pig iron in Germany is available through various channels. First, the reports of the American commercial attaché at Berlin, Germany, furnished by the Department of Commerce; second, the leading iron and steel trade journal of Germany, *Stahl und Eisen;* third, English iron and steel trade publications, notably the *Iron and Coal Trades Review*, and fourth, the *Iron Trade Review*. Upon an examination of these sources of market quotations on the domestic prices in Germany of iron and steel products it will be found that the domestic price of pig iron in dollars per gross ton in Germany is between $20 and $21.25, f.o.b. works in the Rhenish-Westphalian district.

You will notice that on the basis of the above information German pig iron is selling at American Atlantic ports duty paid at approximately the same price as the same pig iron sells for, f.o.b. the German works. This shows clearly that the Germans are selling pig iron for export at considerably less than their domestic price. In order to estimate the difference between the domestic price in Germany and their export price, it is essential to take into consideration at least the following factors:

1. Transportation from the German plant of production to channel ports—Antwerp, Amsterdam, Hamburg, etc.
2. Ocean transportation and insurance from channel ports to American ports.
3. The American ordinary duty.
4. The American broker's profit or commission in effecting sales (substantially all of the pig iron being sold through American brokers).

European Transportation Rates

The first factor above mentioned is difficult to determine exactly. Preferential freight rates are accorded to German steel manufacturers in transporting products for export. In some cases the location of their plants would undoubtedly enable the pig iron to be transported by barge canal to channel ports. Some steel plants may have their own facilities for such transportation. In any event it is obvious that the transportation of pig iron from the German plant to channel ports involves the loading into cars or barges at the plant, the carriage to channel ports and the unloading from cars or barges into ocean freight carriers. We do not see how such transportation can be effected at a cost of less than $1 per gross ton. Figures which we have obtained on the actual cost have shown a substantially greater amount. For the purposes of this letter we will assume a figure of $1 as representing such cost.

The second factor above mentioned is more easily ascertainable. Information at our hands which can be readily and easily verified through consultation with companies engaged in ocean transportation indicates that the cost of ocean transportation and insurance from channel ports to American ports amounts to approximately $3 per gross ton. This figure is also confirmed in the "Preliminary Statement of Information" of the United States Tariff Commission recently published for the purposes of a hearing held on April 20, 1926, under section 315 of the Tariff Act of 1922 on the subject of the increase of the existing ordinary duties on pig iron under said section. On page 24 of said report the following appears:

> Water rates on foreign pig iron are so low as to make possible transportation to the United States over long distances. The rail rates for iron from the inland furnaces of the United States to domestic consumers often considerably exceed the ocean freight rates from foreign countries to our Atlantic seaboard. Pig iron can be shipped for about $3 per ton from Europe to the Atlantic seaboard and for about $4 per ton to the Pacific Coast.

Export Price $4 to $6.50 Below Home Price

The third factor above mentioned is definite, the ordinary duty on pig iron being 75c. per ton.

The fourth factor above mentioned is a matter of trade knowledge and is never less than 50c. per gross ton and is ordinarily $1 per gross ton. For the purposes of this letter we will assume a broker's commission of 75c.

Adding the above four figures a sum of $5.50 per gross ton is obtained, which must be deducted from the sales price in the United States first above mentioned, i.e., $20.25 to $21.50, in order to obtain an estimate of the price which the Germans realize from their export

sales. This deduction gives a price of $14.75 to $16 per gross ton as the amount realized by the German producer on the sale of German pig iron in the United States. Comparing the amount realized by the Germans on their export sales, $14.75 to $16, with the domestic price of pig iron in Germany of $20 to $21.25, it will be seen that the German export price is $4 to $6.50 per gross ton under their domestic price.

The existence of the above difference in prices is prima facie a violation of the anti-dumping act of 1921.

Below American Cost of Production

The provision of the anti-dumping act in respect to the injury to American industry should be easily satisfied. First: The prices at which German pig iron is sold in the United States are less than the cost of production of many American producers. This fact is supported by the above mentioned report of the United States Tariff Commission. Second: The foreign pig iron prices in many cases determine the American producers prices in the eastern part of the United States and the substantial amount of the pig iron that is being imported almost daily is seriously affecting the American producers. Third: Sales by domestic producers are continually being lost through the competition of imported German pig iron. It seems clear, therefore, that the American industry of producing pig iron is being injured through such violations of the anti-dumping act, and we are confident that this can be confirmed by you.

Exports Relatively Small

The difference in the price at which German pig iron is sold at our Atlantic ports as compared with the domestic price in Germany cannot be accounted for by a difference in the wholesale quantities sold in the United States as compared with Germany. It is obvious that this must be the case, for the total amount of German pig iron imported into the United States is relatively small as compared with the total production in Germany of pig iron. The total production of pig iron in Germany for the year 1924 (the last available figures) was 8,200,000 tons, while importation for the same year of German pig iron into the United States was only 11,228 tons, and the importations for 1926 from Germany based upon the importations for the months of January and February, 1926, will amount to approximately 150,000 tons. It is, therefore, obvious that if there should be any difference in the German export and domestic price of pig iron because of the wholesale quantities in which it is sold, the domestic price should be lower than the export price. As pointed out above, however, the reverse of this is the case.

From these facts you will realize that we feel that a case has arisen where the Secretary of the Treasury should find that the industry of manufacturing pig iron is being or is likely to be injured because of the importation of such pig iron from Germany and that such merchandise is sold, or is likely to be sold, in the United States at less than its fair value.

Scrutiny of Invoices Asked

We respectfully request, therefore, that you investigate the importation of pig iron into the United States from Germany with the view of affording protection to the American industry under the provisions of the anti-dumping act of 1921. We suggest that the appraisers at the respective ports be given official information on the domestic price of pig iron in Germany and that they be instructed to compare such domestic price with the invoice prices of such pig iron imported into the United States and further that they be instructed to carefully scrutinize the invoice prices, bearing in mind the prices at which such pig iron is freely offered for sale at their respective ports and calculating the cost of transportation and other charges from the German plants to American ports. A careful analysis of such invoices we believe to be necessary in view of the fact that the ordinary duty on pig iron is a specific one and not controlled by invoice prices, which leads, in our belief, to numerous inaccuracies in the statement of invoice prices.

Inasmuch as the importation of pig iron is increasing at an alarming rate, we would appreciate it if this matter can be taken up promptly through the respective appraisers. Any further information which we as pig iron producers could give you will be gladly given upon your command. Respectfully yours,

WITHERBEE, SHERMAN & Co.

E. O. Marting, President.

A Second Letter

PORT HENRY, N. Y., July 6, 1926.

Secretary of the Treasury, Washington, D. C.

DEAR SIR:—We beg to refer you to our letter of May 27, 1926, in which we called your attention to the violations of the anti-dumping act in connection with the importations of German pig iron.

Prices Delivered Here Below Germany's

In view of the fact that no official finding of dumping has been made up to this time we wish to supplement our previous letter and again call your attention to the importations of this product. During the months of March, April and May 13,900 tons, 13,529 tons and 21,419 tons respectively of German pig iron were imported into the United States, showing that the importations are continuing in substantial quantities and are becoming more serious to the domestic producer each month. The prices at which German pig iron is now offered in the United States are reported to be around $20, f.o.b. Atlantic ports, while *Stahl und Eisen*, the leading German pig iron and steel trade journal, quotes pig iron from 86 to 88 marks per metric ton, f.o.b. Rhenish-Westphalian plants, or $20.80 to $21.27 per gross ton. The German producer is, therefore, absorbing land and ocean transportation charges, insurance, ordinary duties and brokers' profits, and still selling in this country at prices less than those quoted in Germany.

This substantial difference in price is such that, in the language of the act and the Treasury regulations thereunder, it would seem that the customs appraisers should at least suspect dumping and issue a dumping notice to the importers. We are advised that the appraisers at some of the ports have been and are now withholding the final determination of the amount of duty to be collected on German pig iron pending an investigation under the dumping act. This withholding of the passing of invoices covering such importations may result in the accumulation of a large amount of additional duties on past and present importations when the question is finally settled by the department and will result in the importers being compelled eventually to pay these accumulated duties.

Possibility of $7 a Ton Added Duty

The purpose of the dumping act, however, is to operate as a deterrent to such importations and not merely as a source of customs revenue, and this purpose is rendered a nullity through delay in making an official finding of dumping and thus giving the appraisers the authority to assess the additional duties forthwith. We believe that a great number of importers of this product are not informed of the facts and do not realize that the present importations are subject to additional duties of as much as $7 a ton. We believe that in accordance with the act and in fairness to them they should be immediately advised, through the issuance of dumping notices, of this suspected dumping so that they may know the risks involved.

It is therefore necessary, if the dumping act is to afford the protection to the domestic producer that Congress intended, to take immediate and definite steps for the determination of the question of dumping and the ascertaining of the difference in prices and the additional duties to be assessed and collected.

It is particularly disappointing to the domestic producers to read continually in the leading trade journals such as THE IRON AGE and from official Government reports of the substantial difference in price between the German domestic and export sales and then to be subjected to delays in the enforcement of this legislation pending extended investigation.

The American manufacturer is perfectly willing to compete with the German producer on a fair basis, and if the German producer realized as much out of his American sales of pig iron as he does from his domestic sales we are willing and able to meet such competition. The practice of dumping, however, has no consideration for the domestic price (or even the cost of production) in the country of production and is merely an old practice of disposing of a surplus production at any price which it can command.

We respectfully again request that you meet this situation with an official finding under the anti-dumping act. Yours truly,

WITHERBEE, SHERMAN & Co.
E. O. Marting, President.

To Make Cast Iron Pipe at Provo, Utah

Organization of the Pacific States Cast Iron Pipe Co. has been completed and construction work has started on the first unit near the blast furnace of the Columbia Steel Corporation at Provo, Utah. The capitalization consists of $500,000 of preferred stock and 5000 shares of common stock at no par value. Control will be held by the McWane Cast Iron Pipe Co., Birmingham, and the Columbia Steel Corporation, San Francisco. Officers of the company are: J. R. McWane, president; D. H. Botchford, vice-president and general manager Columbia Steel Corporation, vice-president; and W. C. Miller, Provo, secretary.

The initial production of cast iron soil and pressure pipe will be about 50 tons a day. The pressure pipe will be made under the McWane patents. Production is expected to start in six months. The blast furnace of the Columbia Steel Corporation produces monthly about 12,000 tons of pig iron.

British Steel Output Still Very Low in June

LONDON, ENGLAND (*by Cable*), July 13.—Another month of low output of both pig iron and steel was recorded in June, as a result of the coal strike. The pig iron production was only 41,800 gross tons as compared with 88,800 tons in May. The steel output was 32,800 tons, still less than the 45,700 tons made in May. These compare with 539,100 tons of pig iron and 661,000 tons of steel in April.

Steel Wire Company Employees Take Group Insurance

Group plan insurance has been taken out by the employees of the Cleveland plants of the American Steel & Wire Co. The policies covering men in the several plants have been written by four insurance companies and most of the employees have secured insurance under the group plan. The men will be protected in various amounts, being grouped according to occupation or earnings. The group insurance is being handled by the sick benefit societies of the various plants. While the company itself is not involved in the insurance plan, it will cooperate to the extent that it will accept orders given the paymaster by the men for the premiums, which will be deducted from their wages. The premiums will be about $12 a year for $1000 in insurance. A similar insurance plan has also been adopted by employees of the National Tube Co. of Lorain, Ohio, who have organized a relief association to handle the insurance.

Extensive iron ore deposits are reported to have been discovered in the Frick Valley of the Aargau district of Switzerland. According to the London *Metal Bulletin* the deposits extend over almost 1000 acres and contain 26,000,000 tons of ore, assaying from 27 to 37 per cent iron.

Steel Treaters in 1927—Program for 1926 Convention

The directors of the American Society for Steel Treating have announced final arrangements for the annual convention and exposition in 1927. The fact that Detroit had been selected as the location for this convention was announced in THE IRON AGE of May 27, but the date had not then been definitely set. It is now stated that the convention will be held the week of Sept. 19, 1927. The exposition is to be held in the convention hall, located about half way between the General Motors Building and the center of the city. About 100,000 sq. ft. of exhibit space will be available.

It is also announced that the 80,000 sq. ft. of space available for the 1926 exposition has all been reserved. The program for the technical sessions for this year's convention, to be held at Chicago the week of Sept. 20, has been tentatively arranged. It calls for technical sessions in the ballroom of the Drake Hotel, the headquarters, on the morning and afternoon of each day from Sept. 20 to 24 inclusive. The exposition will be open each day from 10 a. m. until 10 p. m., with the exception of Thursday, Sept. 23, when it will close at 6 p. m., because of the annual banquet scheduled for the ballroom of the Drake Hotel that evening. The first E. D. Campbell Memorial Lecture will be delivered in the ballroom of the Drake Hotel at 10.30 a. m., Wednesday, Sept. 22. The annual ball will be held Tuesday evening, Sept. 21, at the Drake Hotel, and the usual smoker and annual frolic at the riding academy at 9.30 p. m., Wednesday, Sept. 22.

Little Damage Reported to Plants in New Jersey Explosion Area

NEW YORK, July 13.—Although there are a number of metal and metal-working plants in the immediate area of the Lake Denmark Naval Depot in New Jersey, at which explosions of ammunition stores on July 10 and 11 caused considerable havoc, but slight damage has apparently been done to these plants, located in Dover and Rockaway, N. J. The Richardson & Boynton Co., with foundries at Dover, suffered broken windows and the damage to plants in Rockaway was generally of the same nature. Other plants in these two towns are the International High-Speed Steel Co. at Rockaway and the Ulster Iron Works at Dover.

Directly in the area of the explosions, however, the ore mines of the Replogle Steel Co. at Mount Hope and the Mt. Hope Mineral Railroad and Wharton & Northern, with combined trackage of about 27 miles, suffered some damage, the extent of which is not known at this writing. At Mount Hope and the Hibernia mines of the Replogle Steel Co., serious damage to the homes of employees is reported, and investigation on the railroads and in the mines is now under way to ascertain what effect, if any, the force of the explosions had on the mine supports and the tracks. The Wharton furnaces of the company at Wharton, N. J., are not reported as affected.

Protests Increased Carload Minimum on Pipe

WASHINGTON, July 13.—The proposal to increase from 36,000 to 46,000 lb. the carload minimum on wrought pipe, rough tubing and seamless tubing, effective Aug. 1, is carried in tariffs filed with the Interstate Commerce Commission by railroads in Central Freight Association territory. Establishment of this minimum would restore the rating that existed prior to Sept. 20, 1924. Protests have been made against the tariffs with the request that they be suspended pending investigation. W. D. Sullivan, traffic department, Babcock & Wilcox Tube Co., in a formal protest, charges that the agitation for the increased minimum, "is advocated by some of the larger jobbers and manufacturers of wrought iron pipe."

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The Outlook for Business

WE have now come sufficiently far along to feel sure that the fears of a few months ago in respect to business were misconceived. Such halting as there may have been helped in the digestion of a slight over-production of goods in 1925 and afforded time for some of the consumers who had purchased things on credit to catch up. Wall Street went through a drastic liquidation for reasons peculiar to itself. It has now been proved both coming and going that the stock market is no longer a reliable barometer of developments in business. It is questionable if it be a barometer at all under the new economic conditions.

The question that concerns many managements now is how they shall conduct themselves in anticipation of the second semester of this year. It is admitted that at present business is good. Will it so continue? Shall contracts be placed for the normal requirements of raw material up to the end of October? Or to the end of the year? Our answer to these questions would emanate from confidence. The horizon shows no gathering clouds. On the other hand there is no ozone in the air to make one excited. The outlook is simply for fair weather.

There are some adverse conditions, to be sure. (1) The pauperization of Europe. (2) Our own agricultural discontent. (3) Our prohibition question. (4) The exactions of union labor. (Not that it acquires increased income for itself, but that it establishes high card rates of wages prevailing for some days of the week and loafs increasingly when its terms cannot be realized.) There is not, however, anything new in these matters, except as to the second and third, which threaten blocs in the next Congress that may launch some bad political measures on the ways of evil compromises.

Fortunately we have a sane administration to stand against such things, and the beneficence of its policies of economy in government and abatement of Federal taxation, with reduction of unjust and uneconomic surtaxes, is now so clearly evident that the lesson has been learned by all parties.

The stock market has risen to a new high level, but in a way different from that of six months ago. The manipulation by pools for the boosting of indiscriminate stocks for distribution to the public has been inconspicuous. The public has not been in the market during the recent rise, meaning of course the gambling public. It is noteworthy that many of the speculative stocks have not recovered from their deflation, while investment stocks have risen, which indicates buying for keeps, out of consideration of expected earning capacity. This is a reflection of the existing sound situation of our business in producing raw materials, manufacturing them and transporting them to their markets.

Vacations for Executives

A REPORT of the committee on vacation practice of the American Management Association discusses vacations as an aid to health and efficiency and pays particular attention to the subject in its relation to executives. Various familiar facts are stated which many men high in industry might well apply personally, and perhaps to some of those who surround them in positions which involve severe mental stresses. To quote the report:

> Psychologists have discovered various kinds of fatigue which are not muscular but are caused by nervous strain. These types are said to be more prevalent among executives today than ever before. Judgment depends on mental and physical efficiency, but the latter tend to become impaired by the stress and strain of modern living conditions and modern business. The greater the responsibility the greater the possibility of strain and mental fatigue. The emotional factors involved in the work of an executive have not been given the full study they demand. Worry, fear of failure, anxiety as to results, pressure of duties and responsibilities, added to the fatigue brought on many times by physical conditions, create emotional effects which cannot help but show in an executive's work. The antidote for this insidious condition may often be a vacation properly utilized. This requires an entire change of occupation and scene, relaxation and physical activity which recreate. The element of play in vacation is essential. It is the mental attitude

that counts. Physiologically, play and work are similar. It is one's state of mind that differentiates the two.

The interesting instance is cited of a manufacturing firm which for six years has carried on a vacation system based on the aforesaid theory, in which a consulting physician plays a dominant part. His duty is to watch over the health of the men in the highest executive group, such as sales managers, merchandise managers, superintendents of manufacturing divisions and the executives in the main office. The directors had agreed with the principle that "an executive in ill health is perhaps worse than no executive at all" and decided to give the physician full play. The latter insisted that the usual period of two weeks' vacation be extended to three weeks for the classes of officials named, also that he have the right to order an additional week in special cases. He decreed that in all instances vacations should be continuous and not broken into several shorter absences. Physical examinations were given each of the group. As the years passed the experiment was pronounced by the firm a complete success. To quote its statement:

> A study of the absentee records of the men in question shows a remarkable change for the better, so much so that, even considering the longer vacation and shorter hours worked by many of them, the total time per year worked by the group is far in excess of what was the case with the short vacation and longer hours. In addition to this, of course, must be considered the fact that since these men were in better health they were naturally more able to carry on their work effectively.

National Wealth and Organization

RECENTLY in response to a Senate resolution the Federal Trade Commission submitted to Congress a report on national wealth and income. A summary has been issued and the full printed report will follow. One very important use of information as to the wealth of the people of the United States is the measuring of the increase from time to time, as indicating what we get of permanent value out of our work, or, roughly speaking, how thrifty we are. Not much can be done in this direction, there being no strictly comparable data over long periods. The estimates of the Census Bureau are admittedly uncertain. Some four years ago Dr. W. R. Ingalls made an important contribution, but this dealt simply with the years 1916 and 1920.

There is another important use to which such statistics can be put, even when they refer merely to one single date, and that is to measure the relative values of the different classes of wealth. In considering the wealth or value of a business enterprise one takes separately the plant, inventory, good will, organization, surplus, etc. The relationship between these items is recognized as of no small significance. If the concern is large, the efficiency of the organization operating it is a matter of moment, and if a trade in the product has been built up by years of effort, that represents value.

It is interesting to analyze in this way the wealth of the people of the United States. The Federal Trade Commission report sets the total wealth, for 1922, at about 353 billion dollars. Included in this is 230 billions of real estate, and that is divided into 122 billions land value and 108 billions improvements.

Consider this 122 billions of land value. It represents 35 per cent of the total "wealth." What is its value but the value of organization? If there were not arrangements by which people could suitably employ themselves, this value simply would not exist. There are laws, usages, and material things creating this value. The material things include transportation facilities, dwelling houses, factories, various public utilities, etc., the value of which is all inventoried separately. They were created by work and make part of the other 65 per cent. The 35 per cent land value cannot be considered otherwise than as arising from organization. No one questions the reality of that value, yet the propriety of appraising the value of the organization of a business concern is sometimes questioned.

From another viewpoint the details of the inventory of national wealth are interesting and productive of thought. In the whole total there is no wealth of any consequence that could be called, so to speak, "surplus" wealth. There is the so-called wealth in land, created because we have organization; there are facilities for our working, in factories, mines, etc.; facilities for transportation, lighting, etc., an absolute necessity for our functioning; facilities for education, care of the sick, etc., absolute necessities; and facilities for government. Practically all the wealth is in the necessities of a going concern. It represents our organization and our facilities for working. Our objects of beauty and our reserves are hardly more than an infinitesimal part of the whole.

Scrap in Steel Making

LOWER in the past two years than in any previous time since 1907 has been the proportionate production of basic pig iron to basic open-hearth steel ingots and castings. A shortage in the scrap supply, predicted many years ago when basic open-hearth steel was in its infancy, still fails to materialize.

In THE IRON AGE of Oct. 16, 1924, page 1016, there was given a table showing from 1896 to 1923 inclusive the production of basic pig iron, the production of basic open-hearth steel ingots and castings, and the percentage relation of the pig iron to the steel. This table covered all the data available at the time, as 1896 was the first year for which the necessary production statistics were gathered. Figures for two additional years being now available, a fresh survey may be made.

The proportion of pig iron to steel was under 50 per cent for six years up to 1905. In the period of sustained heavy production, 1905-6-7, it was 52.0 to 52.5 per cent, thereafter mounting a few points and staying high during the war. This was rather curious, as the production of so much shell steel, with heavy cropping, might be expected to swell the ingot production and thus reduce the pig iron percentage.

It was a common remark at the end of the war

that for several years there would be a good supply of scrap, with an intimation of "look out" thereafter. What we find, however, is that the proportion dropped, averaging 54.0 per cent in 1919-20-21, and then falling to 53.3 per cent for the next two years. Since 1921 was a very "off" year, while 1922 witnessed an important coal strike, this grouping is desirable to make the real showing.

In 1924 the proportion was 52.1 per cent and in 1925 it was 53.0 per cent, the average for the two years, computed by taking total tonnages, being 52.6 per cent. That is lower than in the preceding post-war years, much lower than the average of the war years, and still lower than the pre-war years after 1907.

Thus, so to speak, the scrap supply has come back to its relation of 1905-6-7, when the pig iron proportion was 52.2 per cent, the proportion in 1924 and 1925 being 52.6 per cent. Such a change is of course negligible, and during this period the production of basic open-hearth steel increased by 266 per cent.

Roughly speaking, the showing indicates an increase in the scrap supply for this purpose of basic open-hearth steel making equivalent to a quadrupling in 20 years, or a doubling every ten years. A larger proportion of the old material goes to the steel industry than formerly, iron foundries and iron mills taking smaller proportions.

Production of Bessemer steel decreased after 1906. As Bessemer steel is made from straight pig iron, this decrease in Bessemer, with a large increase in open-hearth, has helped to make the pig iron production smaller than the ingot production, the failure of rolled iron, iron castings and steel castings to grow like rolled steel being another influence.

TWO facts stand out in the world demand for tin plate this year—expansion to a new record total and a remarkable increase in American sales. As judged by the combined American and British exports, the total for the first five months of this year of 60,300 gross tons per month was about 7.5 per cent in excess of the 1925 volume of 56,100 tons per month and about 27 per cent larger than the pre-war volume of 47,300 tons per month in 1913. American participation in this business this year is the largest on record. To June 1 American shipments abroad were 17,200 tons per month, an increase of 26 per cent over the 13,500 tons per month which was considered a large volume in 1925. In 1913 our exports were only 6100 tons per month, so that the present volume is not far from three times as much. Great Britain's increase is small in comparison. The opportunities for the American product may be greater temporarily because of the British strike, but our gains thus far have been made under normal competitive conditions and are one factor in our record tin plate production in the first six months of the year.

New High Points for Electric Steel

SOME surprising records were made by the American electric steel industry in 1925. In three different respects new peaks were reached—in total output, in steel casting production and in electric alloy steel.

At 615,512 gross tons the total output, according to the recent report of the American Iron and Steel Institute, tops all war or peace-time records, and is nearly 100,000 tons larger than the next best output of 515,872 tons in 1923.

The total of 335,978 tons of electric steel ingots in 1925 has been twice exceeded, but the 279,534 tons of castings was 18.5 per cent above the best previous achievement—235,958 tons—also in 1923. And again the proportion of the total steel casting output reached new heights.

More striking, however, was the make of alloy steel in electric furnaces. At 293,780 tons there was an increase of about 98,800 tons, or 50 per cent, over the best previous total, 194,976 tons. Foundries made 44,406 tons—further testimony to the greater use of heat-treated castings in place of forgings.

The 1925 achievement in electric steel easily demonstrates the large place which this industry has established for itself as well as the prime importance of the electric furnace in the foundry.

CORRESPONDENCE

As a Buyer Views the Advertising Section

To the Editor: These thoughts have come to the writer in the course of following his usual custom of looking through the advertising pages of THE IRON AGE. It is many years since this habit was formed and in that time various innovations have been made aiding greatly in locating sources of supply. It is our recollection that this publication was the pioneer in most, if not all, of the classification and indexing helps and while many others have followed suit, it is doubtful if any one has done the work so thoroughly.

Two features, the group plan and buyers' index section, leave nothing to be desired. The group plan concentrates in one place all the sources of supply for any general line and it is only a matter of a few minutes to pick the most likely or most convincing ones. If our requirements are narrowed down to something quite special, the buyers' index section subdivides the main headings very much in detail and gives a comprehensive list of sources of supply for each item. But this is not intended as an encomium upon THE IRON AGE, as its editors and advertising staff have doubtless been complimented many times for the service rendered to its readers.

Set up in a box in the buyers' index section is the following: "This index is a comprehensive guide to sources of supply." That is very true; it is just that. Then follows this wording: "Each company listed is represented with an advertisement for your use in obtaining information." Well, some advertisements give information and some do not. Of course, the products advertised in the trade papers do not lend themselves to the "human interest" style of copy. And just by way of parenthesis let us be thankful that they do not, for that has been so overdone in popular advertising as to border closely on misrepresentation.

Perhaps the best way to express what we have in mind is to say that we read the advertisements with exactly the same mental reaction that we experience in an interview with the salesman. Suppose the salesman

were to place his card on the buyer's desk, wait until it was read and then simply turn and walk out without comment. The card would be tossed aside; he would have made only the most fleeting impression.

Or, if all the salesman could say were that his company manufactured, for example, automatic lifting devices and he believed that they were made as good as it was possible to do, he might arouse a mild interest on the part of the buyer who had never hitherto needed such an article but was expecting to be in the market for some time in the near future.

But to the buyer who was a large user of this item it would be necessary for the salesman at once to arrest his attention by showing an intimate knowledge of his particular make of lifting devices and stress some such interesting point, as giving the buyer additional service or a help to cheapen his cost of production by eliminating certain operations.

The advertisements fall naturally enough into three similar classes; those containing information of interest to the buyer, those containing information of interest to the advertiser himself and those containing no information. That may seem an odd classification, but it is a true one at least for the advertisers of those products in which the writer is interested.

As an illustration of classification No. 2 we note a company telling us in so many words that it manufactures its products the very best it knows how. That of course is of interest to the advertiser himself and no doubt gives confidence to the salesmen as they go out after business. But the buyer is justified in assuming that other manufacturers are doing that same thing and orders cannot be placed alone on such a general statement. And yet our advertising friend takes a whole page to say nothing more definite than that.

And then to illustrate classification No. 3 we find those who give name and address and mention nothing more except to give the general type of product. Not even a hint of the merits of their articles or of their own standing in the trade.

These few random thoughts are the buyer's view of the advertising section. Now let us have the advertising section's view of the buyer. H. D. MURPHY.

Bloomfield, N. J.

Reactions in an Iron Blast Furnace

A study of the reactions in an iron blast furnace has been conducted by metallurgists of the United States Bureau of Mines, as part of a general investigation of the combustion of coke and the reduction of iron oxides in the blast furnace.

Previous study of the combustion zone of the iron blast furnace, by means of a series of gas samples taken through the tuyeres across the hearths of 13 blast furnaces, showed that the combustion of the coke in the blast furnace hearth is complete at a distance of 32 to 40 in. from the nose of the tuyere, measured horizontally toward the center of the furnace. In order to determine the height at which oxygen is found in a vertical direction above the tuyeres and to obtain comparisons with the samples taken at the Bureau of Mines experimental 5-ton blast furnace at Minneapolis, the Bureau extended the gas sampling on a commercial furnace to a number of planes between the tuyere level and the stock line. The sampling was conducted on a 300-ton furnace, making foundry iron, operated by the Central Iron & Coal Co., Holt, Ala. The furnace was smelting Southern red and brown ores and nodules from pyrite sinter. This investigation of a 300-ton furnace in operation proves the following:

> The oxygen of the blast has been consumed, in the process of combustion, at a point 27 in. above the center line of the tuyeres, and the penetration of the combustion zone in the vertical direction is equivalent to that in a horizontal direction at the tuyere level.
>
> The composition of the gas across a plane 20 ft. above the tuyere level is constant. The excess oxygen therein is due to reduction taking place in the bosh.
>
> As the composition of the gas at the plane 20 ft. above the tuyere level is constant, abnormal gas composition shown in the center of the hearth near the tuyere level is a local condition. This is due to a combination of three factors, these being, in order of importance: Restricted circulation of gases in the center of the hearth area, so-called direct reduction, and formation of cyanides.
>
> The uniformity of gas composition at the plane 20 ft. above tuyere level does not indicate uniformity of flow.
>
> Analyses of samples at planes approximately 41, 53 and 63 ft. above the tuyere level show unequal gas composition across the planes. This is due to the effect of four factors: A difference in porosity in the stock column, segregation of iron oxides in the outer part of the column, unequal stock flow, and unequal gas flow.

The results indicate that better practice with lower coke consumption might be obtained if operation could be so maintained that the gas composition on any plane higher than that 20 ft. above the tuyere level would be uniform in carbon dioxide content, and also so maintained that the carbon dioxide content of the gases would increase with distance from the hearth level. This condition will exist if the materials are so arranged in the stack that the composition of the charge is uniform throughout the column. It then follows that the flow of gas and stock in the column must be maintained uniformly.

Results of this investigation are given in Serial No. 2747, "Study of the Reactions in an Iron Blast Furnace," by S. P. Kinney, P. H. Royster, and T. L. Joseph, copies of which may be obtained from the Bureau of Mines, Department of Commerce, Washington.

Materials for Extreme Conditions

At the annual fall meeting of the American Electrochemical Society, to be held in Washington, Oct. 7, 8 and 9, the feature will be a symposium on "Materials for Use Under Extreme Conditions." The organizer of this symposium is Dr. H. W. Gillett, United States Bureau of Standards, Washington. Electrochemistry has provided many materials for use under extreme conditions, such as tungsten, chromium and vanadium for high-speed steel; chromium for stainless steel and iron; high conductivity copper by the electrolytic process; refractories for electric smelting and other uses; abrasives, and so on through a long list.

At the symposium papers will be presented on materials suitable for resisting extreme conditions and on extreme conditions not yet filled in the fields of corrosion, high temperatures, refractories, electrical insulation, chemical manufacture, etc. It is desired to supplement these papers by a compilation of a list of needs for "super materials," and of super materials already satisfactorily developed for exacting needs.

Cyanite Makes a High-Grade Fire Brick

An investigation of the properties of brick, made of cyanite, a fire-resisting material, has been partially completed by M. S. Freed, research associate for Henry A. Golwynne at the United States Bureau of Standards. The material was taken from a recently discovered deposit in India and much of it contains over 95 per cent pure cyanite. Cyanite, either raw or calcined, pure, or bonded with clay, produced refractory bodies capable of withstanding standard and modified laboratory tests for high-grade refractories. The bodies showed excellent resistance to spalling and to deformation under load at high temperature. They also showed a uniform and low thermal expansion and a high melting point. Petrographic analyses indicated complete conversion of cyanite to mullite in the test specimens and the results of the laboratory test indicate the bodies to be the equal in quality of many so-called "superrefractories" now on the market.

Iron and Steel Markets

Mill Operations on a Good Scale

July Percentage in the Seventies—Steel Corporation Gain in New Business—Cotton Tie Prices Named—Pig Iron Still Lower

NEW business in steel has made a good showing thus far in July. While in the first half of June bookings were not at so high a rate as marked the final week, it is a favorable indication that the Steel Corporation's orders have been averaging 2000 tons a day higher this month than in the first ten business days in June.

Forecasts of operations in July lack something in definiteness. The stepping down from 92 per cent in March to 88 in April, 84 in May and 80 in June is an unusually gradual decline. It is expected that the 4 per cent gap will widen somewhat this month, but to no marked extent, and if the average operation should prove to be 75 per cent or slightly less, it would still be well above the 65 per cent of July, 1925.

While some of the heavier products are not figuring in mill shipments to the same extent as in the spring months, there is sustained consumption in a wide range of other finished forms which promises an exceptional July-August operation of mills.

Steel Corporation operations this week are at 85 per cent, and in the Youngstown district independent companies have made a good gain after the holiday shut-down, so that the average for the Pittsburgh-Youngstown district is above 75 per cent.

The decrease of 170,608 tons in the unfilled tonnage of the Steel Corporation for June was the smallest for any month this year since January. Shipments in the second quarter were at a rate which represents good economy in production and at better prices than the average for the like period last year.

Leading makers of cotton ties have opened books for the season, naming prices of $1.20 per 45-lb. bundle, f.o.b. Gulf ports, and $1.22 f.o.b. Atlantic ports, a reduction of 5c. to 6c. per bundle from last year. Prices have also been named for distribution from some interior points, for example, $1.27 at Memphis. As was the case last year, the outlook is for the retention of the cotton tie business by domestic mills as against sporadic offerings from Europe.

Prices of the principal finished steel products are on a fairly even keel. Sheets are still irregular and competition in strip steel is more in evidence. Sales of heavy sheets to barrel manufacturers brought out new low prices. In galvanized sheets, the maintenance of sheet bar prices and a zinc advance of $8 a ton in two weeks are counter currents to recent concessions.

Railroad car works are slowing down on their schedules, but tank makers are busy on contracts for the Texas Panhandle district. In some other directions plate mills are doing better, barge inquiry at Pittsburgh amounting to 4500 tons.

For 500 C. & O. car bodies and 250 Norfolk & Western flat cars inquiries are out for 12,500 tons of steel.

Structural steel awards of 29,000 tons included 4500 tons for an athletic club in Chicago and 3350 tons for an office building in Detroit. An apartment hotel in Philadelphia on which bids are being taken calls for 3500 tons of steel.

A viaduct in Philadelphia will take 8000 tons of reinforcing bars, award of which will probably be made this week. A Southern mill will furnish 4000 tons of bars for a pier at Mobile, Ala.

An oil company operating in the Southwestern field is inquiring for 45 miles of 8-in. line pipe, equal to 3500 tons.

Some domestic sellers of pig iron in the East have named lower prices in the past fortnight, in more aggressive competition with foreign iron. The latter is coming in rather freely, however, on old sales, last week's receipts at Philadelphia alone being 6150 tons from Germany, France and England.

While Central Western pig iron sales are tapering off, Cleveland offices took 50,000 tons in the past week, and at Chicago new business brought the total movement there up to 450,000 tons.

In spite of the marked weakness in pig iron, heavy steel scrap is somewhat higher at Pittsburgh and Chicago. Dealers who are buying to cover sales find only moderate offerings at 25c. to 50c. above their recent selling prices. But it is dealers rather than consumers who are making the market.

Export business recently closed includes 5000 tons of rails for Central America and 4000 tons of oil pipe for Rangoon.

French makers of cast-iron pipe have scored again rather heavily, the Pont-à-Mousson works taking 14,000 tons of 30-in. pipe for the line to be built for Amarillo, Tex.

British contracts for American coal are on a larger scale, four domestic sellers having just closed 1,500,000 tons for shipment in the next two months.

Weakness in basic pig iron has brought down THE IRON AGE composite price from $19.71 to $19.46, the lowest figure since last September. It is more than $2 a ton below the level at the opening of the year, but is 50c. above that of last July.

The finished steel composite price remains at 2.431c. per lb. for the fourth week—exactly at the level of one year ago.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	July 13, 1926	July 6, 1926	June 15, 1926	July 14, 1925
No. 2X, Philadelphia‡	$22.26	$22.26	$22.76	$21.26
No. 2, Valley Furnace†	17.75	17.75	18.00	18.50
No. 2, Southern, Cin'ti†	24.19	24.19	24.19	22.05
No. 2, Birmingham†	21.00	21.00	21.00	18.00
No. 2 foundry, Chicago*	21.00	21.00	21.00	20.50
Basic, del'd, eastern Pa.	21.00	21.00	21.25	21.50
Basic, Valley furnace	*17.50*	18.00	18.00	18.00
Valley Bessemer del. P'gh.	*20.26*	20.76	20.76	20.76
Malleable, Chicago*	21.00	21.00	21.00	20.50
Malleable, Valley	17.75	17.75	18.00	18.50
Gray forge, Pittsburgh	19.01	19.01	19.26	19.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	88.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	34.00	38.08
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	35.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila.	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh	1.90	1.90	1.90	1.90
Tank plates, Chicago	2.10	2.10	2.10	2.10
Tank plates, New York	2.24	2.24	2.24	2.14
Beams, Pittsburgh	2.00	2.00	1.90	2.00
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York	2.34	2.34	2.24	2.34
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

Sheets, Nails and Wire.	July 13, 1926	July 6, 1926	June 15, 1926	July 14, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.10	3.10	3.10	3.10
Sheets, black, No. 28, Chicago dist. mill	3.25	3.25	3.25	3.30
Sheets, galv., No. 28, P'gh	4.25	4.25	4.30	4.20
Sheets, galv. No. 28, Chicago dist. mill	4.40	4.40	4.50	4.35
Sheets, blue, 9 & 10, P'gh	2.30	2.30	2.30	2.30
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.40	2.45
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.35
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.40
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$16.50	$16.50	$15.00	$17.00
Carwheels, Philadelphia	17.00	17.00	17.00	17.00
Heavy steel scrap, P'gh	**17.00**	16.25	16.00	17.50
Heavy steel scrap, Phila.	15.00	15.00	15.00	15.50
Heavy steel scrap, Ch'go	**14.25**	14.00	12.25	15.50
No. 1 cast, Pittsburgh	15.50	15.50	16.00	17.00
No. 1 cast, Philadelphia	17.00	17.00	17.00	17.50
No. 1 cast, Ch'go (net ton)	**17.25**	17.00	16.00	17.50
No. 1 RR. wrot. Phila.	16.50	16.50	16.50	17.50
No. 1 RR. wrot. Ch'go (net)	**13.25**	13.00	11.50	14.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$2.75	$2.75	$2.75	$2.75
Foundry coke, prompt	4.00	4.00	4.00	3.75
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	**14.12½**	14.00	14.12½	14.25
Electrolytic copper, refinery	**13.87½**	13.62½	13.75	14.00
Zinc, St. Louis	**7.52½**	7.22½	7.25	7.17½
Zinc, New York	**7.87½**	7.57½	7.60	7.52½
Lead, St. Louis	**8.20**	8.00	8.00	8.00
Lead, New York	**8.40**	8.25	8.25	8.35
Tin (Straits), New York	62.62½	62.62½	61.00	58.25
Antimony (Asiatic), N. Y.	14.00	14.00	10.50	18.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Holiday Curtailment Balanced — Weakness in Pig Iron but Scrap Strong

PITTSBURGH, July 13.—Steel business still is making a good showing, especially in comparison with that at this time last year. Most companies have found that business in the past week has run well ahead of the same week last year and to have been well up to the average of the early weeks of June before demand responded to the stimulation of prospective advances in prices.

Some increase is noted in the general average of the steel plant operations in this and nearby districts since a week ago due to a sharp rise in the Youngstown district, where at least a dozen open-hearth furnaces which were idle last week are in production this week. There has been a slight loss in the Pittsburgh district, but elsewhere in this general area ingot production is being maintained; and with the Carnegie Steel Co. running about 85 per cent of capacity, the average rate is not far from 75 per cent.

In a general way, there seems to be no tendency to speed up production because the general expectation is that July and August will not be as productive of business as June and it is considered good policy not to work down order books too rapidly. The production record of the steel industry for the six months of this year, remarkable as it appears, does not tell the whole story of consumption during that period. At the end of June stocks of semi-finished steel were almost negligible, while at the beginning of the year they were of sizable proportions; and since apparently these stocks as well as the production during the first half of the year have been used up, the industry has enjoyed even greater activity than many in the industry supposed.

The check up of shipments of finished steel products for the half year has developed quite as much of a surprise as the ingot production figures, the gain of one company over the first half of 1925 running into six figures. The first half of the year really has done so well that it is now commonly said that if business over the remainder of the year is as good as it is at present the year will be an eminently satisfactory one.

Some irregularity in sheet steel prices continues and competition in cold-rolled strips is sufficient to keep prices unsettled, but in other finished steel products the market shows considerable steadiness. The steel making grades of pig iron have dropped 50c. a ton under increasing pressure to find an outlet for a supply that exceeds the demand.

In the face of weakness in the pig iron market the scrap market has grown stronger, but this development is due chiefly to nervousness among dealers who sold short and, now that buyers are demanding delivery, find that offerings are rather meager. Scrap dealers have paid 25c. to 50c. a ton more for supplies than they lately have been getting from the consumers, and on some old sales their losses run as high as $1 a ton. It is the dealers rather than the consumers who are making the present market.

Pig Iron.—The steel making grades of pig iron have gone down 50c. a ton with actual sales of round lots of basic noted at $17.50, Valley furnace, and definite offers covering shipments over the remainder of the year at the same price. Bessemer iron has sold as high as $19, Valley furnace, in the past week, one

sale amounting to 2000 tons, but this iron was of special analysis and, on account of the extra trouble in producing it, usually commands a premium of 50c. a ton over standard grades. There have been offerings of the latter by both merchant furnaces and steel companies at $18.50. No trouble now would be experienced buying standard Bessemer at the latter price. The demand for foundry iron now is coming from the small lot buyers, as the important consumers a few weeks ago covered themselves against their requirement for the current quarter and some for entire last half of the year. On these small lots producers generally are quoting $18, Valley furnace, for No. 2 grade and a few of them are naming $18.50 and sales are claimed at both prices.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$17.50
Bessemer	$18.50 to 19.00
Gray forge	$17.25 to 17.50
No. 2 foundry	17.75 to 18.00
No. 3 foundry	17.25 to 17.50
Malleable	17.75 to 18.00
Low phosphorus, copper free	27.50

Ferroalloys.—Sustained operations by the steel industry are responsible for very steady specifying against contracts for the more commonly used ferroalloys. New business is light and is confined to the small users, who rarely buy more than a carload at a time. It is the kind of market that is to be expected when producers are well obligated and important consumers are well covered. Prices show no change. They are given on page 171.

Fluorspar.—Domestic producers still are holding firmly to $18 per net ton, f.o.b. mines, for 85 per cent fluoride, with 5 per cent gravel, and while business is disappointing in that consumers are buying close to actual requirements, it is steady enough to sustain that price. It takes a sizable tonnage to bring out a lower figure.

Semi-Finished Steel.—With tin mill engagement high for the time of year and the sheet makers getting larger orders than recently, a little more urgent demand is noted for sheet bars and the position of makers on prices is thereby strengthened. Consumers are voicing objection to the price, but there is no evidence that they have succeeded in depressing it. Not much increase yet is observed in the movement of billets and slabs, as the gain in the orders for strips, which constitute the principal use for commercial billets and slabs, has not yet been very pronounced. An important user of forging quality billets claims to have a lower price than $40, base Pittsburgh, but there is no information as to the extent of the cut. Wire rods are moving steadily at unchanged prices. Other prices are given on page 171.

Wire Products.—Makers are experiencing no summer lull. Consumers and jobbers built up no stocks in the spring and with consumption good, as usual at this time of year, it is necessary for them to make constant demands upon the mills. Individual orders in nails and plain and barbed wire are small, but there are a good many of them. Prices are steady. They are given on page 169.

Rails and Track Supplies.—There is more interest in light rails, notably on the part of hard-coal producers, and some effort is being made to stiffen prices on the basis that at $34 per gross ton, billet rails are selling at about 1.50c. per lb. or from $8 to $10 per net ton under merchant mill products. The effort is to bring about a more natural price relation between light rails and other merchant mill products, as well as with standard rails. The Norfolk & Western Railway has placed 17,000 kegs of standard spikes for last-half shipment with Pittsburgh makers; that road has yet to distribute a considerable tonnage of tie plates. Small spikes are moving rather slowly. Local makers are trying to establish $4.25 base, per 100 lb. on track bolts, but competition is too keen to permit it. Prices are given on page 169.

Tubular Goods.—Even though there has been some increase in plant engagement, with steel pipe capacity now fully 90 per cent occupied, there has been no shortening of delivery promises on the popular sizes of lap-welded pipe. Although prices of Pennsylvania grades of crude oil recently dropped 25c. per bbl., urgency continues for oil well casing, drill and drive pipe, and line pipe orders do not move through the mills rapidly enough to permit putting them on smaller sizes. Steady demand is noted for buttweld pipe, jobbers having made no preparations for summer demands and finding it necessary to make frequent calls on the mills. Such tendency as there was to shade prices has disappeared with the gain in business and the building up of backlogs. The situation in boiler tubes is without change; there is a fair demand, but too many sellers for buyers for prices to show real strength. Discounts are given on page 169.

Sheets.—Not much fault is to be found with business, which continues to expand, but price stability which usually accompanies expanding orders still is to be accomplished. Effort to set the market on a basis of 2.30c., base Pittsburgh, for blue annealed, 3.15c., base, for black and 4.30c., base, for galvanized as yet are nullified by the willingness of some makers to take business at $1 to $2 a ton less. Automobile body builders are steadily increasing their takings. Sheet mill operations are up again this week. due to the resumption by a number of Mahoning Valley mills that remained down after the Fourth of July suspension. Prices are given on page 169.

Tin Plate.—Any slackening there has been in the demand for tin plate, as a result of the exceptionally

THE IRON AGE Composite Prices

Finished Steel

July 13, 1926, 2.431c. Per Lb.

One week ago	2.431c.
One month ago	2.417c.
One year ago	2.431c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

July 13, 1926, $19.46 Per Gross Ton

One week ago	$19.71
One month ago	19.79
One year ago	18.96
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.00c. to 2.10c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb	$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.	1.20

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.60c. to 3.75c.
Strips, f.o.b. Cleveland mills	3.60c.
Strips, delivered Chicago	3.90c. to 4.05c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.30c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills,	2.40c. to 2.45c.
Nos. 9 and 10, del'd Philadelphia	2.62c to 2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.10c. to 3.15c.
No. 28, f.o.b. Ch'go dist. mill	3.25c. to 3.30c.
No. 28, del'd Philadelphia	3.32c. to 3.47c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.20c. to 4.30c.
No. 28, f.o.b. Chicago dist. mills	4.40c. to 4.45c.
No. 28. del'd Philadelphia	4.62c. to 4.72c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.15c.
No. 28, f.o.b. Chicago dist. mill	3.25c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.20c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.75c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
21.00*	(½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
23.00	(3½% Nickel)	4.40 to 4.50
2500	(5% Nickel)	5.50 to 5.65
3100	(Nickel Chromium)	3.40 to 3.50
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.40 to 3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.30
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$34.00 to 35.00
Light (from rail steel), f.o.b. mill	32.00 to 33.00
Light (from billets), f.o.b. Ch'go mill	$36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.00
Spikes, ⅓ in. and smaller	2.90 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes	3.90 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3¼ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

heavy shipments over the first half of the year and the backwardness of the crop growing season, has been counterbalanced by extra demands from the Pacific Coast and for export. Mills continue to operate at 80 per cent of capacity and there is enough business in sight to sustain that rate through the next 45 days. Export business runs to small lots, but orders are numerous.

Cold Finished Steel Bars.—Demand is very steady for small lots for early delivery and with the automobile industry gaining momentum as new models get into production, parts makers are releasing more tonnage. Prices are steady, but suggestions of an advance based on the recent strengthening of the price of hot rolled bars are not taken very seriously. On ordinary tonnages of cold finished steel bars the price is still 2.50c., base Pittsburgh.

Hot Rolled Flats.—The more common report is that business is heavier than it was a month ago, but this does not mean that a real active market exists or that productive capacity is taxed in meeting the demand. Actually, mills need orders in a number of sizes, but that need is not so great as to prompt price cutting, the market as for the last six months being quotable at 2.30c., base Pittsburgh, for material 6 in. and wider and 2.50c., base, for that narrower than 6 in.

Cotton Ties.—It develops that leading makers quietly opened books for this year's cotton ties on July 6, naming prices of $1.20 per bundle of 45 lb., f.o.b. Gulf ports, and $1.22, f.o.b. Atlantic ports, and having prices at a number of interior distributing points where stocks are warehoused, the price at Memphis being $1.27. This year's port prices are 5c. to 6c. per bundle under those of a year ago, when $1.25 was the Gulf port price and $1.28 the Atlantic port base.

Cold Rolled Strips.—On small lots, the market here is holding at 3.75c., base Pittsburgh, and some large users are said to be paying that price, but business is not large enough to give all makers an equal share and retention of old customers is possible only at concessions from that price of $2 to $3 a ton. Those making a stand on prices are faring poorer on business than those whose prices are flexible. Fender stock is very irregular in price and there is not much observance of the regular differential over automobile body sheets, which would mean a price of 5.20c. for cold rolled strips for No. 22 gage.

Bolts, Nuts and Rivets.—Demands for bolts and nuts are not taxing productive capacity, but that fact does not seem to disturb prices. Evidently, makers are more satisfied with a small business at a profit than a large one that entails losses. The regular quotation on large rivets is $2.60, base, per 100 lb., but that price is subject to shading by as much as $2 to $3 per ton. Prices and discounts are given on page 171.

Steel and Iron Bars.—Contract buyers are specifying with a fair degree of freedom for steel bars and there is a reasonably good volume of day-to-day buying. On the latter kind of business 2.10c., base Pittsburgh, is done occasionally, but the ruling price on ordinary tonnages still is 2c. base. There is not much activity in iron bars and sizable inquiry would probably mean some shading of prices.

Structural Steel.—Mills in this district are holding firmly to 2c., base Pittsburgh, for large structural shapes on new business and efforts to secure supplies for less have not been successful. The mills are well supplied with business owing to the tonnage driven in by the advance in prices made late last month and the desire to get prices that yield a fair return still is strong. Fabricating shops in this district are busy, but while unable to take on much new business for as prompt shipment as is desired, they want business for delivery late in the year.

Plates.—The market here is showing a little more activity. Barge awards during the week called for approximately 2000 tons of steel, while there is 2500 tons in the sixteen barges for the Upper Mississippi Barge Line, bids for which will be opened July 16. The Chesapeake & Ohio Railroad is taking bids on steel for 500 70-ton Hopper car bodies. This means about 7500 tons of plate and shapes. Continued activity in pipe is providing engagement for much plate mill capacity. The market is firm at 1.90c., base Pittsburgh, but more does not yet appear obtainable even on small tonnages.

Coke and Coal.—Offerings of spot furnace coke still are small but quite ample for such demand as exists, and the prices of a week ago are all that are obtainable. There is no occasion to change prices on spot foundry coke, as demand and supply are running even. Some export demands for coal are coming to this market on account of the tie-up of the British mines and while prices have been strengthened by this development, there is a little better feeling in the market because of the wider outlet.

Old Material.—The market has stiffened further since a week ago on heavy melting steel due to the nervousness of dealers who went short of the market at prices ranging from $15.50 to $16.50 and with the expiration of those contracts in sight and buyers calling for delivery, there has been something of a scramble to cover. As much as $17.30 to $17.35, delivered Steubenville, is reported to have been paid for heavy steel scrap in the July Pennsylvania Railroad list and at least $17 was paid for this grade for other deliveries. Dealers have not found it possible to pick up good industrial scrap lately at less than $17 and with at least one consumer in the district offering $17, the market does not appear to be quotable at less. There has been some stiffening of sheet scrap in sympathy. The market is strong in the blast furnace grades, but still is dragging and rather soft in foundry grades. The Norfolk & Western Railway July list, closing July 14, offers 6228 gross tons of old material.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel		$17.00
No. 1 cast, cupola size	15.50 to	16.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	16.50 to	17.00
Compressed sheet steel	15.50 to	16.00
Bundled sheets, sides and ends	14.50 to	15.00
Railroad knuckles and couplers	18.00 to	18.50
Railroad coil and leaf springs	18.00 to	18.50
Low phosphorus blooms and billet ends	20.50 to	21.00
Low phosphorus mill plates	20.00 to	20.50
Low phosphorus miscellaneous	18.50 to	19.00
Low phosphorus punchings	18.50 to	19.00
Steel car axles	20.50 to	21.00
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	18.00 to	18.50
Machine shop turnings	11.00 to	11.50
Short shoveling turnings	12.50 to	13.00
Sheet bar crops	18.00 to	19.00
Heavy steel axle turnings	15.00 to	15.50
Short mixed borings and turnings	12.50 to	13.00
Heavy breakable cast	14.00 to	14.50
Cast iron borings	12.50 to	13.00
No. 1 railroad wrought	13.00 to	13.50
No. 2 railroad wrought		17.00
Railroad or automobile malleable scrap	17.50 to	18.00

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.00c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.05c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Square and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F. o. b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.75 to $12.50
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00 to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$2.75 to $2.85
Foundry, f.o.b. Connellsville prompt	4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.00
Foundry, by-product, Newark or Jersey City, delivered	9.75 to 10.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to $1.90
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines	1.90 to 2.10
Steam slack, f.o.b. W. Pa. mines	1.15 to 1.25
Gas slack, f.o.b. W. Pa. mines	1.25 to 1.35

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$88.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	88.00

Spiegleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00 to $87.50
75%	145.00 to 150.00

	Per Gross Ton Furnace		*Per Gross Ton Furnace*
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*
10% $33.00	12%	$37.00
11% 35.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*
6% $25.50	10%	$31.00
7% 26.50	11%	33.00
8% 27.50	12%	35.00
9% 29.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.50 to $17.75
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$38.00 to $40.00
Maryland	43.00 to 46.00	38.00 to 40.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	38.00 to 40.00
Kentucky	40.00 to 43.00	38.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 38.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to 7.50	

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	50.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00 to $48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
⅞ in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	U.S.S.		S.A.E.	U.S.S.
¼-in.	$0.44	$0.44	¾-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	80 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S.A.E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

Steel Specifications Equal to Shipments, Which Are Slightly Reduced

CHICAGO, July 13.—Blast furnace operations in this district are curtailed by the blowing out of the No. 2 stack at South Chicago. With 11 blast furnaces in at Gary, eight at South Chicago and one at Joliet, the Steel Corporation is operating a total of 20, which is one less than the number in blast during the peak month of March. Within the last few weeks and particularly over the holiday period mills have had a chance to lay down some iron, and although the No. 2 stack is going out for repairs, it is not likely that another will be blown in to take its place at this time.

Shipments are in slightly less volume than a week ago, due in some measure to the fact that rail mills have caught up to the demand and have reduced rolling schedules below the peak of late June. Orders to mills show betterment when compared to the average for the previous three weeks, but now that car builders have practically specified in full against equipment orders placed during the early months of the year, it is hardly to be expected that the current rate of orders will be maintained. Railroads are actively in the market for track supplies and in a number of cases have specified beyond contract coverage of earlier in the year. In finished steel products, specifications are about equal to shipments but new buying continues to lag.

Pig Iron.—Sales for the week now closing are large in the aggregate, bringing the total close to 450,000 tons sold since the current buying movement started. Fourth-quarter requirements appear to be as interesting to users as are those for the next three months and a number of contracts for the remainder of the year have closely followed those of the quarter now started. Although there still remains a sizable volume of inquiry before the trade, it is noticeable during the last few days that there is a tapering off in interest, indicating peak of the present buying movement has been passed. Shipments so far in July are fully equal to the average for June, which fell short by only a small margin of the delivery rate of the peak month of February, 1921. This is not to be continued, according to producers, who anticipate that hot weather will curtail to some extent the melt in this district. Price quotations in the immediate Chicago district are steady and Milwaukee producers are quoting the $21, Chicago base price, on malleable iron. The freight rate from Chicago to Milwaukee is 56c. for a two railroad haul and 44c. if the shipment is handled by one railroad. A northern Indiana melter is in the market for 5000 tons of Northern and malleable iron and a user west of Chicago has taken 1000 tons of those grades. Second-quarter silvery is active at current quotations and three sales, of 300, 500 and 1000 tons, respectively, are reported to users in Michigan.

Quotations on Northern foundry high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	21.00 to 21.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01
Southern No. 2 (barge and rail)	25.18
Low phos., sil. 1 to 2 per cent, copper free	29.50 to 30.00
Silvery, sil. 8 per cent	32.29
Bessemer ferrosilicon, 14 to 15 per cent	45.79

Ferroalloys.—Specifications for ferrosilicon during the first half of this year are fully 50 per cent heavier than during the first six months of 1924 and are in greater volume than the corresponding period of last year. Spiegeleisen prices are steady and dealers in this territory are having some difficulty in obtaining the 19 to 21 per cent grade in more than carload lots.

We quote 80 per cent ferromanganese, $95.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $39.76 to $41.76, delivered Chicago.

Plates.—A sharp decline in the rate of plate shipments is at hand, as car builders are about to forward the last specifications against contracts placed earlier in the year. Although the general impression throughout the trade is to the effect that the railroads are contemplating the placing of equipment contracts, this development is slow to materialize. The Chesapeake & Ohio is asking for 7500 tons of steel for construction of 500 hopper car bodies. It is believed that this is the forerunner of additional inquiry from that source. The Norfolk & Western will require 5000 tons of steel for 250 heavy type flat cars. Tank makers are heavily engaged on contracts for the Texas Panhandle district, where the production of oil is gradually increasing and must be stored pending shipment by rail in the absence of pipe lines through that territory. One order for oil tankage this week added 1800 tons to a local maker's books. Delivery on universal mill plates ranges from four to six weeks, although this at times may be bettered through an occasional revising of rolling schedules. Recent orders have not been on a large scale, and the mill price remains fairly steady at 2.10c.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Structural Material.—Both awards and fresh inquiry are in greater volume this week. The leading producer has booked 4500 tons for the Midland Club, which was awarded to the American Bridge Co. and 700 tons for a bridge at Racine, Wis. A Chicago office building will require 3000 tons and several apartment hotels will average 500 to 1000 tons each. Fabricating shops in this district are well booked for six to eight weeks, but at the moment see little beyond that time, the result being that bidding on new projects is very active and prices obtained are showing a downward trend. The mill quotation on plain material is steady at 2.10c. June building permits in Chicago totaled $31,000,000, a sum equal to that of May. Permits for the first six months of this year average fully 20 per cent above the average for the like periods of the past five years.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Sheet Bars.—This commodity is in fair demand and the price is steady at $36. Bookings this week totaled better than 3000 tons.

Bars.—The demand for soft steel bars continues to expand and figures now available show that specifications so far in July are fully 40 per cent ahead of the average for June. Sales and specifications for the week are about equal to the previous seven days. Liberal tonnages are being asked for by the automobile industry and reinforced concrete bars dealers are making heavy demands. The implement trade is expanding operations, as is shown by the gradually increasing specifications from that source. The mill price is steady at 2.10c. Both specifications and new buying of iron bars are in light volume and users continue to take only such quantities as will cover immediate requirements. At the moment the railroads are the largest users. Rail steel bar mills continue to operate at an unchanged rate, although the character of the demand for this commodity has changed materially within the past few weeks. Reinforcing bar contracts are adding substantial tonnages to makers' books; on the other hand, fence posts are undergoing a seasonal slump. Specifications from the implement trade are expanding and mills look for an increase in business from bed manufacturers, who are this week interested in an exhibit of their products. The Chicago price of rail steel bars is steady at 2c.

Wire Products.—New contracts for third-quarter delivery are coming in well, and the jobbing trade is good, considering the time of the year. Stocks on the whole are not heavy, but there is a noticeable tendency upon the part of the manufacturing trade to buy further in advance and to anticipate future requirements. Tonnage booked for all products for the first six months

of this year is in excess of the corresponding period of 1925. Mills are operating in the neighborhood of 60 per cent of capacity and prices are steady at $2.70 for nails and $2.55 per 100 lb. for plain wire.

Rails and Track Supplies.—Demand for spikes, bolts and tie plates is unusually good and some railroads have specified beyond expectations on recent contracts for these commodities. The Pennsylvania placed 2500 tons of track supplies during the week and other miscellaneous orders for spikes, bolts, tie plates and splice bars totaled to 11,000 tons. There is considerable interest in the market based on the report that the railroads will buy heavily of rails at an early date. The unusual demand this spring placed a burden on mills which prohibited them from meeting delivery schedules and this resulted in delaying maintenance work in the field. It is now felt by the trade that the railroads will place rail contracts early and arrange delivery dates so that maintenance and new construction work can go forward without delay. Mill schedules on contracts placed in the spring are well caught up, as is evidenced by the fact that last week the Gary rail mill rolled 16,000 tons, as against 18,500 several weeks ago. There is a substantial inquiry at the moment for iron tie plates.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.25c. to 2.35c. mill; angle bars, 2.75c. mill.

Bolts, Nuts and Rivets.—Practically no resistance has been offered to third-quarter contracting, which is now better than 90 per cent closed. Prices remain firm and specifications for the week show improvement over the early part of the month.

Reinforcing Bars.—Demand for concrete bars, as reflected in new building projects, remains active. Lettings are numerous, although individually smaller than a week ago. Competition between distributers is keen and although occasional concessions in prices are made, the market is on the whole rather steady.

Cast Iron Pipe.—The local market remains rather quiet, both in new inquiry and buying. Although on the general run of business makers' books are well balanced, here and there a low bid is made where a fair tonnage of a desirable size is wanted. The American Cast Iron Pipe Co. took 1100 tons of 8-in. Class B pipe for Chicago at a reported price of $39, base Birmingham, or $47.20 delivered. Smaller tonnages are bringing as high as $41, base, thus bringing the Chicago delivered price for diameters over 6 in. within the range of $47.20 to $49.20. Private interests are not actively in the market. Sprinkler manufacturers have taken several carload lots and a public utility company in the southern part of Illinois has placed a small tonnage. Waukegan, Ill., is reported in the market for 1000 tons and Fostoria, Ohio, will receive tenders on 125 tons of 6 and 8-in. Class B pipe. Alliance, Ohio, will take bids July 15 on about 100 tons of 6, 8 and 10-in. Class C pipe. Gillette, Wis., has closed with the National Cast Iron Pipe Co. for 200 tons of 6 and 8-in. Class B pipe.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $51.20 to $53.70; 6-in. and over, $47.20 to $49.70; Class A and gas pipe, $4 extra.

Coke.—Second quarter contracts are practically completed at $9.75 per net ton at ovens, or $10.25 delivered in the Chicago switching district.

Old Material.—There is a marked degree of strength in this market, as is evidenced by greater activity on the part of users, who are paying prices above the level of a week ago. Trading among dealers is unusually active at advanced prices. In some grades, notably heavy melting steel, brokers are short and are paying the upper levels in order to cover past contracts. Users of this grade are inspecting shipments closely and in some cases are insisting upon railroad scrap. One mill took 3000 tons of heavy melting steel at $14.50, delivered, and 1600 tons offered recently by the Santa Fe brought $15.50, delivered. On the whole, users are a little more alert as to their future requirements, and indications are that they are thinking seriously of building up stocks, which have been low throughout the winter. Sales of specialties to consumers are in fair volume and borings are in particularly good demand. The Soo Line is offering 500 tons of scrap and G. W. Jennings, Inc., will sell 400 tons of old car material.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Heavy melting steel	$14.25 to	$14.75
Frogs, switches and guards, cut apart, and miscellaneous rails	15.50 to	16.00
Shoveling steel	14.25 to	14.75
Hydraulic compressed sheets	12.00 to	12.50
Drop forge flashings	9.50 to	10.00
Forged, cast and rolled steel car wheels	18.50 to	19.00
Railroad tires, charging box size	19.00 to	19.50
Railroad leaf springs, cut apart	18.50 to	19.00
Steel couplers and knuckles	17.50 to	18.00
Coil springs	19.00 to	19.50
Low phos. punchings	17.50 to	18.00
Axle turnings, foundry grade	15.00 to	15.50
Axle turnings, blast fur. grade	13.00 to	13.50
Relaying rails, 56 to 60 lb.	25.50 to	26.50
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Rerolling rails	17.25 to	17.75
Steel rails, less than 3 ft.	17.00 to	17.50
Iron rails	14.50 to	15.00
Cast iron borings	11.25 to	11.75
Short shoveling turnings	11.25 to	11.75
Machine shop turnings	8.00 to	8.50
Railroad malleable	18.00 to	18.50
Agricultural malleable	16.00 to	16.50
Angle bars, steel	16.50 to	17.00
Cast iron car wheels	16.50 to	17.00
Per Net Ton		
No. 1 machinery cast	17.25 to	17.75
No. 1 railroad cast	16.75 to	17.25
No. 1 agricultural cast	16.75 to	17.25
Stove plate	14.25 to	14.75
Grate bars	14.25 to	14.75
Brake shoes	13.75 to	14.25
Iron angle and splice bars	14.00 to	14.50
Iron arch bars and transoms	20.00 to	20.50
Iron car axles	24.50 to	25.00
Steel car axles	17.50 to	18.00
No. 1 railroad wrought	13.25 to	13.75
No. 2 railroad wrought	12.75 to	13.25
No. 1 busheling	11.50 to	12.00
No. 2 busheling	7.50 to	8.00
Locomotive tires, smooth	17.00 to	17.50
Pipes and flues	10.00 to	10.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base, per keg	3.05
Cement coated nails, base, per keg	3.05

"Pure Zinc at Normal and Elevated Temperatures" is the title of scientific paper No. 522 of the United States Bureau of Standards. The authors are John R. Freeman, Jr., Frederick Sillers, Jr., and Paul F. Brandt, all of the bureau. Part I discusses some physical properties and Part II treats of crystal structure. Data are given on coefficiency of expansion, density, scleroscope and Brinell hardness, and tensile properties, as well as crystal structure at normal and elevated temperatures.

Cleveland

Steel Bookings Beyond Expectations—50,000 Tons More Pig Iron Sold

CLEVELAND, July 13.—Mills booked a fair volume of business the past week, in fact, more than some expected, in view of the large tonnage entered the last few days of June on expiring contracts. Some of the railroads in this territory during the week placed considerable business in track fastenings and some new oil country business came out in the form of pump rods. Reports from the automotive industry indicate little change in production schedules this month and the car builders and parts makers are ordering steel only for early requirements. No awards of lake vessels have been made since the placing of two large freighters reported last week. One of these was ordered by the Kinsman Transit Co., the name of the buyer being previously withheld. Several lake boats are still pending. Some of the consuming industries using plates have become busier than they were, resulting in an increased plate demand.

Structural activity shows a revival in Detroit, where three jobs taking 5000 tons of steel were placed during the week. Prices are firm at 2c., Pittsburgh, for steel bars and structural material, and 1.90c. for plates. The 2.10c. price for small lots of steel bars has not become generally effective.

Pig Iron.—Sales fell off sharply the past week, as had been expected. However, Cleveland interests sold close to 50,000 tons in foundry and malleable iron, mostly for the last half. Buying was well distributed through northern Ohio, Michigan, Indiana and western Pennsylvania. The General Electric Co. placed a round tonnage for the fourth quarter for its Erie, Pa., and other plants. An Indiana foundry purchased 2000 tons. While some inquiry is still coming out, the buying movement appears to be pretty well over. The market has a firmer tone, due evidently to the fact that some of the lake furnaces are now comfortably filled with orders and are not quoting as low prices as they did recently to take business in competitive territories. Cleveland furnaces are holding more closely to the $18.50 price for out of town shipment and are able to take business at that price for shipment to points where they have a freight advantage over Valley furnaces. In the Valley district $18 is still quoted, but some business is being taken at $18.50. In Michigan no attempt has been made to advance prices, which range from $19 to $19.50. In Cleveland the local delivery price is unchanged at $19 furnace. A northern Ohio consumer is inquiring for 750 tons of low phosphorus iron.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$18.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	19.50
Southern fdy., sil. 1.75 to 2.25	$26.51 to 27.01
Malleable	19.50
Ohio silvery, 8 per cent	30.52
Standard low phos., Valley furnace	27.50

Iron Ore.—A few small lot sales were made during the week. An inquiry for 100,000 tons previously reported is still pending. On July 1 there were 4,573,156 tons of ore on Lake Erie docks as compared with 5,007,152 tons on the same date a year ago. Receipts at Lake Erie ports during June were 6,472,246 tons, and for the season to July 1, 9,810,134 tons as compared with 12,250,086 tons up to July 1 last year. Shipments from these docks in June were 4,685,236 tons, and so far for the season 8,549,342 tons, as compared with 9,744,270 tons to July 1 last year.

Fluorspar.—A 500-ton lot of gravel fluorspar was sold during the week at the regular $18 price, which is being firmly maintained. There is some activity in other grades, which are holding to schedule prices.

Bolts, Nuts and Rivets.—Bolt and nut makers are getting a fair volume of specifications on third quarter contracts. Prices are firm. Most rivet consumers are now under third quarter contracts for large rivets at the $2.60 price. Rivet orders are holding to recent volume.

Tool Steel.—The market is quite active, but prices are rather irregular. The usual range on high speed tool steel, 18 per cent tungsten, is 65 to 70 cents per lb., but round lots have brought out lower prices.

Semi-Finished Steel.—Mills are buying in small lots as needed. The leading local producer is operating at the same capacity as for several months past, or eight out of 14 open-hearth furnaces. Prices are firm at $36 for sheet bars and $35 for slabs and large billets, both Youngstown and Cleveland base.

Sheets.—Orders show an improvement over a few weeks ago, but buying is still of a hand-to-mouth character and most producers need business. While prices are not so bad as they have been on black sheets, some of the mills are still going to 3c., Pittsburgh, for the heavier gages and from 3.05c. to 3.10c. on the lighter gages. However, some of the mills are holding to the minimum of 3.15c. and are taking orders. It has developed that two mills recently went as low as 2.90c. Valley, in sales of heavy sheets to barrel manufacturers. Galvanized sheets are still weak with quotations at 4.20c., Pittsburgh, and 4.25c., Valley. Blue annealed sheets are holding well at 2.30c., Pittsburgh, and no shading is reported on automobile body sheets.

Strip Steel.—The demand for hot rolled strip steel is only moderate and there are reports of some concessions from regular prices which have been well maintained for months. Cold-rolled strip steel is moving in better volume than a few weeks ago and the price is well maintained at 3.60c., Cleveland.

Old Material.—The market is firmer on blast furnace scrap. While some of the dealers are still trying to buy borings and turnings at $11.50, sales have been made at $11.75, and the higher price is now being offered for material against contracts placed recently by a Cleveland mill. Dealers are paying $14.25 to $14.50 for heavy melting steel. There is very little activity outside of blast furnace scrap and heavy melting steel. No sales were reported to mills during the week and dealers do not have much tonnage in old orders on their books.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel	$14.25 to $14.50
Rails for rolling	16.25 to 16.50
Rails under 3 ft	17.00 to 17.50
Low phosphorus billet, bloom and slab crops	18.00 to 18.50
Low phosphorus sheet bar crops	18.25 to 18.75
Low phosphorus plate scrap	18.00 to 18.50
Low phosphorus forging crops	16.75 to 17.25
Cast iron borings	11.25 to 11.75
Machine shop turnings	10.00 to 10.50
Mixed borings and short turnings	11.25 to 11.75
Compressed sheet steel	13.00 to 13.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	13.75 to 14.25
Railroad malleable	18.00 to 18.50
Light bundled sheet stampings	11.00 to 11.50
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	11.50 to 12.00
No. 2 busheling	11.25 to 11.75
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	11.50 to 12.00
Pipes and flues	10.00 to 10.50

Reinforcing Bars.—Two lots aggregating 700 tons were placed during the week and two inquiries amounting to 1200 tons came out. While 2c., Pittsburgh, is a common quotation on new billet steel bars, 1.90c. can

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	3.85c.
No. 10 blue annealed sheets	3.15c.
No. 28 galvanized sheets	5.00c.
No. 9 annealed wire, per 100 lb	$3.00
No. 9 galvanized wire, per 100 lb	3.45
Common wire nails, base, per keg	3.00

probably still be done on a round lot. Rail steel bars are unchanged at 1.80c. to 1.90c., mill.

Warehouse Business.—Sales from stock are rather light, but prices are firm except on galvanized sheets, on which concessions of around $5 a ton are appearing.

Coke.—Specifications against foundry coke contracts are fair. Prices are unchanged at $4 to $5 for standard Connellsville brands. Ohio by-product coke is held at $7.50 for July shipment. There is a fair demand for by-product domestic coke in the egg size. This coke is quoted at $5 for egg and $4.50 for nut.

New York

Low-Priced Domestic Pig Iron Barring Out Foreign Product—Consumers Take Steel Freely

NEW YORK, July 13.—Tonnage of pig iron placed in this district last week is estimated at 15,000 to 20,000 tons and there is close to 15,000 tons under inquiry, not including the 5000 tons or more of basic for the American Tube & Stamping Co., Bridgeport, Conn., reported a week ago. The estimate of total purchases does not include the sizeable tonnage of third quarter iron, several thousand tons, placed by the Central Foundry Co. with Continental interests. The 3000 tons of No. 2 and No. 2X foundry and malleable for the New York Air Brake Co., Watertown, N. Y., has been taken by a Buffalo producer and a northern New York furnace. No action has been taken on the 1000 tons of high silicon iron for the Phillipsburg, N. J., plant of the Ingersoll-Rand Co. In the past week the Thatcher Furnace Co., Newark, has entered the market for 3000 tons of No. 2 and No. 2X foundry for delivery over the last four months of the year, and the A. P. Smith Mfg. Co., East Orange, N. J., has asked for 1000 tons of No. 2 and No. 2X foundry for the same delivery. The American Locomotive Co. is inquiring for 1000 tons of No. 2 and No. 1X for Schenectady, N. Y., and the Gould Coupler Co. for about 1000 tons of malleable. The current base of $21 eastern Pennsylvania, and $21, f.o.b. furnace in New England seems to be holding except on the more desirable business. At the present level of the market the difference in price between the foreign and domestic product is small, and there has been keen and successful competition by domestic producers both in the New England and eastern Pennsylvania districts. Some Buffalo sales have been at prices well below $18 at furnace. In addition to the larger inquiries in the market there is 2000 tons or more of 100-ton to 500-ton lots. The number of buyers interested in covering for the rest of the year at current prices is evidently growing, with producers sharply competing for any delivery specified.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25	$23.52 to $24.02
East Pa. No. 2X fdy., sil. 2.25 to 2.75	24.02 to 24.52
East Pa. No. 1X fdy., sil. 2.75 to 3.25	24.52 to 25.02
Buffalo fdy., sil. 1.75 to 2.25 (all-rail)	23.41 to 23.91
Buffalo fdy., sil. 1.75 to 2.25 (by barge canal, del'd alongside in lighterage limits, N. Y. and Brooklyn)	22.75
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.54 to 28.04

Ferroalloys.—There have been a few inquiries for carload and small lots of ferromanganese, but otherwise the market is as inactive as it has been for many weeks. The foreign electric alloy and some of the domestic product is available at $88, which is the minimum quotation. The British are still asking $110, seaboard, but booking no business. There have been sales of a few carload and small lots of spiegeleisen as well as several hundred tons of the foreign product. There are also a few substantial inquiries before the market. There is occasional demand for 50 per cent ferrosilicon and standard ferrochromium, but it is light. Specifications on contract for all ferroalloys continue heavy.

Finished Steel.—The success of the recent advances of $2 a ton on bars and structural shapes has given rise to a report not verified at this writing that one of the large producers of bars will shortly announce a further advance of $2, thereby making the minimum price 2.10c., Pittsburgh. Such an advance, if it occurs, would have little real effect until fourth quarter, as most consumers are covered for their third quarter requirements at 1.90c. and 2c. No further price changes are anticipated. There is greater strength in the price structure than in months, and even in those products for which the demand is not large enough to satisfy the mills, such as sheets and wire products, there is now no marked weakness. Wire products, of course, have remained steady in price in the face of only a 50 to 60 per cent demand, while in sheets the mills seem to have reached the lowest prices to which they are willing to go. Black sheets, on which weakness was most evident, are being sold generally at 3.10c., Pittsburgh, but occasionally orders are placed at $1 and $2 a ton below this figure. While there has been no such buying activ-

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1¼ x ½ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt	46	29
¾-in. butt	51	37
1-in. butt	53	39
2 ½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
½-in. butt	4	+19
¾-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100-lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass†

	Per Lb.
Nos. 18 to 20	3.95c. to 4.10c.
Nos. 22 and 24	4.00c. to 4.15c.
No. 26	4.05c. to 4.20c.
No. 28*	4.15c. to 4.30c.
No. 30	4.35c. to 4.50c.

Sheets, Galvanized†

	Per Lb.
No. 14	4.25c. to 4.40c.
No. 16	4.40c. to 4.55c.
Nos. 18 and 20	4.55c. to 4.70c.
Nos. 22 and 24	4.70c. to 4.85c.
No. 26	4.85c. to 5.00c.
No. 28*	5.15c. to 5.30c.
No. 30	5.65c. to 5.80c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

†Lower price is for lots of 50 bundles of galvanized or 25 bundles of black.

ity in the past week as occurred during June, specifications on third quarter contracts have been coming in freely, and, as the mills do not actually enter contracts as orders until the specifications are received, this month is so far showing up exceedingly well for July in the tonnage definitely scheduled for rolling. Some of the sales offices in New York have been exceeding their normal quotas since the Fourth of July holidays. A large Eastern steel company has been entering orders equal to the daily output, so that the backlog tonnage accumulated in June has not been depleted for maintenance of mill operations. This is particularly the case in structural shapes and bars. Several of the plate mills have fairly full schedules for all of this month, with some business also scheduled for August. The largest inquiry in this market is for 45 miles of 8-in. line pipe for an oil company operating in the Southwestern field, the quantity being about 3500 tons.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Warehouse Business.—Demand for structural material is in good volume despite the season and prices are being maintained at the present schedule with few concessions offered. An increased tonnage of sheet business is reported moving since the recent reduction to 4.15c. to 4.30c. per lb., base on black and 5.15c. to 5.30c. per lb. base on galvanized. While July business at the present rate will probably represent a good total, the usual summer quiet has apparently set in.

Old Material.—The market is quiet and prices steady and firm. No. 1 heavy melting steel is still being purchased in many cases at prices equal to the contract on which it is shipped. The current buying market is from $14.50 to $15.50 per ton, delivered eastern Pennsylvania, brokers paying $14.50 per ton, delivered Bethlehem, $15 per ton, delivered Conshohocken, $15.25 and $15.50 per ton, delivered Coatesville and $15.50 per ton, delivered Claymont, Del. Offers of less than these prices are reported bringing out little or no material. Specification pipe continues to be purchased at $14 per ton, delivered, and machine shop turnings and stove plate for steel mills are quoted by brokers at $13.50 per ton, delivered. Heavy breakable cast covers a wide price range depending upon whether it is shipped into eastern Pennsylvania at about $12.25 per ton, New York, or to a New Jersey consumer requiring a high grade of material for which $14 per ton, New York, is paid.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$9.75 to $10.25
Heavy melting steel (railroad or equivalent)	11.25 to 12.25
Rails for rolling	12.00 to 12.50
Relaying rails, nominal	23.00 to 24.00
Steel car axles	18.50 to 19.00
Iron car axles	22.00 to 22.50
No. 1 railroad wrought	13.50 to 14.00
Forge fire	9.50 to 10.00
No. 1 yard wrought, long	12.00 to 12.50
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	12.00 to 13.00
Machine shop turnings	9.50 to 10.00
Mixed borings and turnings	9.25 to 9.75
Iron and steel pipe (1 in. diam., not under 2 ft. long)	10.25 to 10.75
Stove plate (steel mill)	9.50 to 10.00
Stove plate (foundry)	10.50 to 11.00
Locomotive grate bars	10.50 to 11.00
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	12.25 to 12.75
No. 1 heavy breakable cast	12.25 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.50 to $17.00
No. 1 heavy cast (columns, building material, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Cast Iron Pipe.—Few municipal inquiries of any consequence are reported in this district but a fair volume of private purchasing is being done. Boston opens bids this week on about 1000 tons of 48-in. water pipe. One of the large awards of the year was the letting last week of 14,000 tons of 30-in. pipe for Amarillo, Tex., to B. Nicoll & Co., New York, representing the Pont-a-Mousson works. Prices are quite firm on most business, only the larger tonnages on which competition is keen bringing out quotations of less than $50 per ton, delivered in this district.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Coke.—Demand is light and prices of Connellsville foundry and furnace continue unchanged. The coal market has recently been stirred to activity by the purchase of 1,500,000 tons for shipment to Britain during the next two months or more. The order was distributed among the General Coal Co., Consolidated Coal Co., Castner, Curran & Bullitt and W. A. Marshall & Co. Standard brands of Connellsville foundry coke are quoted in this district as follows: Delivered Newark and Jersey City, N. J., $7.91 to $9.16 per ton; northern New Jersey, $8.03 to $9.28; and New York or Brooklyn, N. Y., $8.79 to $10.04. By-product is quoted at $9.75 to $10.77, delivered Newark or Jersey City, N. J.

Philadelphia

July Steel Buying Shows Slight Recession But Is Still Fairly Good

PHILADELPHIA, July 13.—There has been a slight falling off in the volume of new steel business this month, which is not surprising in view of the fact that so many consumers in June protected themselves for all or a part of third quarter, particularly on plates, shapes and bars. Specifications on contracts have been coming to the mills in good volume and there is every indication that the month will make a record for July. Eastern mills are maintaining operations at about the June rate, an unusual condition for mid-summer.

Pig iron buying has been exceedingly quiet in the past week. Sales were in small volume. The scrap market continues quiet but prices are steadier.

Pig Iron.—The volume of pig iron buying in the last week was very small. Most of the foundries in this district seem to have covered their requirements fully for third quarter, and current buying is mainly by the smaller foundries which cover their needs for only 30 days at a time. Prices are unchanged, being on the basis of $21 to $21.50 at the nearest furnace for the base grade of foundry iron.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.76 to $22.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.26 to 22.76
East. Pa. No. 1X	22.76 to 23.26
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	21.00 to 21.25
Gray forge	21.50 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferromanganese.—Sales are limited to occasional carload lots, on which prices range from $90 to $95, furnace. The Lavino Furnace Co. is now operating two furnaces on ferromanganese, Sheridan and Reusens.

Billets.—Users of billets in this district are now very few and sales are rather infrequent. Prices are unchanged at $35, Pittsburgh, for rerolling quality and $40 for ordinary forging quality.

Plates.—Eastern plate mills have sufficient business on their books to insure operations through July at about the June rate. There is a fair volume of new buying. More plate contracts were made for third quarter than is ordinarily the case, and specifications against these contracts are being sent in without undue urging on the part of the mills. Quotations continue at 1.90c., Pittsburgh.

Structural Shapes.—Fabricating shops are extremely busy and are taking material from the mills in good volume. Some of these shops have from three to five months' work ahead, and are unable to make the deliveries which some prospective builders seem to require. On work in hand fabricators are well protected at prices below the current quotation of 2c., Pittsburgh, some in fact having bought as cheaply as about 2c., Philadelphia, before the recent advance in prices. An apartment hotel to be built in Philadelphia will call for 3500 tons of steel, and there are several smaller jobs pending.

Bars.—A decision is expected this week on the purchase of 8000 tons of concrete reinforcing bars for a viaduct to be built jointly by the city and the Pennsylvania railroad. The bars will be bought by the general contractors. The buying of bars at 2c., Pittsburgh, the prevailing quotation, is in limited volume as most of the large users and distributors got protection at least through July and August at 1.90c. Bar iron is quoted by Eastern mills at 2.22c., Philadelphia.

Sheets.—Demand for sheets is relatively light in this district. However, the price situation is somewhat steadier. Black sheets are being generally sold at 3.10c., Pittsburgh, with occasional cuts of $1 or $2 a ton, while galvanized and blue annealed sheets are unchanged at 4.30c. to 4.40c., Pittsburgh, for the former and at 2.30c. to 2.40c. for the latter.

Old Material.—Prices paid to the Pennsylvania Railroad for scrap on its July list offer a better indication of possible market trends than any other market developments. In the main the prices paid were higher than the present market affords, leading to the assumption that some of the material was bought on speculation by those who expect a rise in prices. For heavy melting steel the equivalent of $16.10, delivered Coatesville, was paid.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$14.50 to $15.50
Scrap rails	15.00 to 15.50
Steel rails for rolling	15.50 to 16.00
No. 1 low phos., heavy, 0.04 per cent and under	19.00 to 20.00
Couplers and knuckles	17.00 to 17.50
Rolled steel wheels	17.00 to 17.50
Cast iron car wheels	17.00 to 17.50
No. 1 railroad wrought	16.50 to 17.00
No. 1 yard wrought	16.00 to 16.50
No. 1 forge fire	13.00 to 13.50
Bundled sheets (for steel works)	13.50
Mixed borings and turnings (for blast furnace)	12.50 to 13.00
Machine shop turnings (for steel works)	13.50
Machine shop turnings (for rolling mills)	13.50 to 14.00
Heavy axle turnings (or equivalent)	14.00 to 14.50
Cast borings (for steel works and rolling mill)	13.50 to 14.00
Cast borings (for chemical plant)	15.00 to 15.50
No. 1 cast	17.00 to 18.00
Heavy breakable cast (for steel works)	16.50
Railroad grate bars	14.00
Stove plate (for steel works)	14.00
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.00
Shafting	20.00 to 21.00
Steel axles	21.50 to 22.00

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¾-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ¼-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ¼-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.35c.
No. 10 blue annealed sheets	3.40c.
No. 28 galvanized sheets	5.55c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	3.20c.
Tool steel	8.50c.
Swedish iron bars	6.00c. to 6.50c.

Imports.—Last week's receipts of foreign pig iron at Philadelphia amounted to 6150 tons. Of this 2850 tons came from Germany, 2000 from England and 1300 from France. Other imports were as follows: Structural steel from Belgium, 629 tons; cast iron pipe from Belgium, 60 tons; hoop steel from Belgium, 21 tons; iron ore from Algeria, 6171 tons; iron blooms from Sweden, 99 tons; steel blooms from France, 250 tons; black sheets from England, 22 tons.

Wage Rates Unchanged for Sheet Mill Workers

YOUNGSTOWN, July 13.—Tonnage rates for sheet and tin mill workers in Midwestern mills continue unchanged for July and August from the May-June rate, bimonthly settlement at Warren indicates. The average price of Nos. 26, 27 and 28 gage black sheets shipped by mills of the Western Sheet and Tin Plate Manufacturers' Association, for sixty days ended June 30, was $3.25 per 100 lb. This is unchanged from the average two months ago. Conferees meet Wednesday in Cleveland, to resume negotiations to renew annual agreement in bar iron division following adjournment in June at Atlantic City.

Welded Pipe Line 22 Miles Long

A welded pipe line no less than 22 miles in length has been completed for the transmission of water from a new reservoir to the Fleming Hill reservoir of Vallejo, Cal.

The pipe line is of steel-plate construction, all seams being electric-arc welded. The pipe is 22 and 24 in. in diameter, 15 miles being 24 in. and 7 miles, 22-in. pipe. Of the 24-in. pipe there are approximately 11 miles having a wall thickness of 3/16 in. and 4 miles of ¼-in. material, whereas the 22-in. diameter pipe has a wall thickness of 3/16 in.

The complete pipe line was built by the Western Pipe & Steel Co., using General Electric welding machinery. The total static head on the pipe varies from 100 to 400 ft., and all of the pipe was tested at the shop to 225 lb. pressure. A number of sections were tested to 325 lb. and a few to 720 lb. pressure without leaks.

Automatic electric arc welding was used at the factory for making longitudinal seams for 14-ft. sections of pipe. Two of these sections were joined together by means of a circular weld using semi-automatic equipment. The 28-ft. sections were delivered in the field and several sections were welded together on the surface by hand welding before being lowered into the ditch.

The finished 22 miles of pipe was put under final test for 48 consecutive hours in the early part of March of this year. During this length of time the pipe was held under a press pressure of 200 lb. per square inch at the lowest point in the line. During the 48 hr. of test the line was continuously patrolled and inspected at all points but no leakage was discovered.

The Concrete Reinforcing Steel Institute will hold its next semi-annual meeting at French Lick Springs Hotel, French Lick, Ind., on Sept. 13 to 15. The directors will meet at 10 a. m. on Monday, Sept. 13, and the general session will convene at 2 p. m. on the same day. A banquet will take place on Tuesday evening, and the final session will be held on Wednesday morning, to be followed by a golf tournament in the afternoon.

The new seamless tube mill of the Pittsburgh Steel Products Co., Allenport, Pa., capable of producing seamless pipe up to 12 in. in diameter, has been completed and a test of the mill is scheduled for the latter part of this week. This is a Pilger mill and was built by the Demag Co., Duisberg, Germany.

San Francisco

Price Firmness Is More Pronounced—New Ferry Boat Inquiry Is Expected

SAN FRANCISCO, July 10.—(*By Air Mail*).—The State Railroad Commission has granted a permit to the Golden Gate Ferry Co., San Francisco, to operate an automobile ferry between this city and Berkeley, Cal., and it is expected that the ferry company will come into the market within the next few weeks for about 900 tons of shapes and plates for three new ferry boats, and a quantity of miscellaneous material for pier construction. The Southern Pacific Co. during the week, is understood to have asked for bids on two additional ferry boats, making the total seven boats, on which bids close next week, and which, it is estimated, will require about 3000 to 4200 tons of steel.

Structural shapes and pig iron were the two leading departments of the market during the past week. But in both of these, lettings were relatively, rather than actually, large. In both plates and shapes, the price firmness of the past two weeks is more pronounced because of the small amount of buying, and the apparent unwillingness of buyers to indicate the extent of their forward requirements.

Pig Iron.—A shipment of about 300 tons of Indian foundry iron was received during the week by a local importer, who is offering it at about $25 duty paid, f.o.b. cars, San Francisco. A large local user is understood to have placed 500 tons of 2.75 to 3.25 per cent silicon foundry iron with a local broker during the week, and also, to have put out an inquiry for about 100 tons of Bessemer iron. Current quotations are as follows:

*Utah basic	$26.00 to $27.00
*Utah foundry, sil. 2.75 to 3.25	26.00 to 27.00
**English foundry, sil. 2.75 to 3.25	25.00
**Indian foundry, sil. 2.75 to 3.25	25.00
**German foundry, sil. 2.75 to 3.25	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25	22.50
**Belgium foundry, sil. 2.75 to 3.25	22.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Fabricated steel lettings during the week total 2458 tons. The only important inquiry known to have come out calls for 400 tons for a high school in San Francisco. The largest individual letting, 950 tons, for a pier at Honolulu, T. H., was taken by the California Steel Co., San Francisco. Eastern mills continue to quote plain material at 2.35c. c.i.f. Coast ports.

Plates.—No lettings nor inquiries of over 100 tons have developed. The plate market is unusually quiet, although several fair sized projects have been pending for several weeks. Because of the small amount of buying the price firmness, which began to develop about two weeks ago, is more pronounced. Nothing below 2.30c. c.i.f. Coast ports is known to have been quoted recently.

Bars.—No lettings in concrete bars of 100 tons or over are known to have been made during the week. Several small jobs have been awarded, and a fair aggregate tonnage is pending. Reinforcing bar jobbers continue to quote as follows: 2.80c., base, per lb. on lots of 250 tons; 2.95c., base, on carload lots, and 3.20c., base on less than carload lots.

Cast Iron Pipe.—It is reported, but unconfirmed here, that cast iron pipe has been selected for the pipe line to be constructed for Amarillo, Tex., and that 14,000 tons has been placed with foreign producers. Several good sized tonnages are pending in this State but no public awards are known to have been closed during the week.

Steel Pipe.—The Standard Oil Co., San Francisco, is understood to have placed 600 tons of 8 and 12-in. line pipe in an Eastern market. Los Angeles will close bids July 19 on 330 tons of 8-in. Matheson joint pipe, required under specification 795-E.

Warehouse Business.—Buying continues relatively light, and there is very little anticipation of forward requirements. Prices are unchanged.

Coke.—Inquiry is fair, and current buying of small quantities continues. Fresh shipments from Germany are expected during the month. German by-product coke is quoted at $12 to $12.50 per net ton.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¼-in. and thicker	6.30c.
No. 28 black sheets	4.75c.
No. 10 blue annealed sheets	3.75c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.50
Cement coated nails, base per keg	3.00

St. Louis

Crest of Pig Iron Buying Passed—Scrap Dealers Bullish

ST. LOUIS, July 13.—The main users of pig iron having covered in the recent buying movement, sales have dwindled, the total reported being under 3000 tons. Most of the latest buying has been by the smaller interests, the largest single lot reported being 200 tons to a near-by Illinois job foundry. Shipments from all directions are heavy, and melters seem willing to accept their contract quotas as due, despite a reduction in the general melt of the district. Prices remain unchanged, and it is possible now to purchase at about the levels current at the beginning of the movement. The leading local producer has disposed of its prospective output for the next several months.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25	24.42 to 25.42
Granite City iron, sil. 1.75 to 2.25	22.81 to 23.31

Finished Iron and Steel.—Intensely hot weather, coupled with vacations, has caused a slight recession in ordering of finished iron and steel materials. Fabricators report enough small jobs to maintain the recent rate of activity, but large lettings are absent. In the building material classification, concrete bars are the most active item. Some improvement in demand for wire nails and wire products generally is noted. Prices are quotably unchanged on all the principal commodities. Specifications for the steel work on the new $4,000,000 St. Louis courthouse will be completed this week and the contract let about Aug. 15. About 5500 tons of steel will be required.

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent Off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Coke.—Shipments on old contracts continue in fair volume, but new ordering by mills and foundries has slowed down somewhat as compared with the past few weeks. A further slight improvement is noted in the demand from dealers and the domestic trade. Storage stocks of local by-product manufacturers are the small-

est for this particular date in more than five years. Prices are unchanged.

Old Material.—Continued strength features the market, due entirely to buying activity on the part of dealers. The only consumer purchase of any size reported was about 1000 tons of steel specialties by an East Side steelmaker. Otherwise buying by both mills and foundries was on a hand-to-mouth basis. Some blast furnace grades and steel specialties ranged 25c. to 50c. higher. The railroads are still marketing their scrap freely, and realizing top prices for practically everything they have to sell. Most recent lists were 800 tons by the Santa Fe, 800 tons by Chicago & Eastern Illinois, 350 tons by Kansas City Southern, 1000 tons by the St. Paul, 23,855 tons by Baltimore & Ohio, 920 tons by Texas & Pacific, 200 tons by Frisco, 300 tons by Pullman Co., 3500 tons by Wabash, 3500 tons by Great Northern, and 12,000 tons by Chesapeake & Ohio.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$11.50 to $12.00
Rails for rolling	15.00 to 15.50
Steel rails less than 3 ft.	15.50 to 16.00
Relaying rails, 60 lb. and under	20.50 to 23.50
Relaying rails, 70 lb. and over	26.50 to 29.00
Cast iron car wheels	15.50 to 16.00
Heavy melting steel	13.00 to 13.50
Heavy shoveling steel	13.00 to 13.50
Frogs, switches and guards cut apart	15.00 to 15.50
Railroad springs	17.00 to 17.50
Heavy axle and tire turnings	9.00 to 9.50
No. 1 locomotive tires	16.00 to 16.50
Per Net Ton	
Steel angle bars	12.00 to 12.50
Steel car axles	17.25 to 17.75
Iron car axles	20.50 to 21.00
Wrought iron bars and transoms	18.25 to 18.75
No. 1 railroad wrought	11.00 to 11.50
No. 2 railroad wrought	11.50 to 12.00
Cast iron borings	9.00 to 9.50
No. 1 busheling	10.00 to 10.50
No. 1 railroad cast	14.50 to 15.00
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	13.00 to 13.50
Machine shop turnings	6.25 to 7.75
Bundled sheets	6.75 to 7.25

Boston

Pig Iron Less Active and Less Price Weakness Evident

BOSTON, July 13.—Pig iron is less active in this territory and less price cutting is going on, although one New York State furnace is still making some low prices, which keeps the market in an unsettled condition. This furnace the past week sold No. 1X iron at $23.65 a ton delivered, or $20 furnace, equivalent to $19 furnace, Buffalo. A Buffalo steel mill sold No. 2X on a basis of $18 furnace for No. 2 plain, and is reported to have sold 12,000 tons of the 50,000 tons sold in New England on this buying movement. Other Buffalo furnaces are holding to $19, furnace base, but securing little business. Several Connecticut plants are asking bids on third and fourth-quarter iron, the aggregate tonnage being 2000 tons of foundry and 600 tons of malleable iron. A Westfield, Mass., plant, credited with having recently bought 10,000 tons of third-quarter iron is sounding out the market for fourth-quarter, but has specified no tonnages. Otherwise, most of the large foundries have covered for third and into fourth-quarter. Many small and some fair-sized ones did not participate in this buying. They are buying a car at a time as needed, and will require iron later. Western Pennsylvania furnaces tucked in car lots the past week, for mixture purposes, at prices $1 to $2 a ton above those quoted by New York State furnaces.

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flat, hot rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons	3.95c.
Squares and flats	4.45c.
Toe calk steel	6.00c.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.65 to $25.15
East. Penn., sil. 2.25 to 2.75	25.15 to 25.65
Buffalo, sil. 1.75 to 2.25	22.91 to 23.91
Buffalo, sil. 2.25 to 2.75	23.41 to 24.41
Virginia, sil. 1.75 to 2.25	27.92 to 28.42
Virginia, sil. 2.25 to 2.75	28.42 to 28.92
Alabama, sil. 1.75 to 2.25	30.60
Alabama, sil. 2.25 to 2.75	31.10

Imports.—Imports of pig iron at this port for June aggregated 4936 tons, made up of 2177 tons of Dutch iron, 2404 tons of Indian and 355 tons of German. This compares with 3979 tons for May, this year, and 7967 tons for June, last year. Imports for the six months ended with June totaled 40,777 tons, contrasted with 53,591 tons for the corresponding period last year. The Mystic Iron Works, Everett, Mass., received 33,396 tons of ore consisting of 7800 tons from Bizerta, 7996 tons from Narvik, 8100 tons from Bona, and 9500 tons from Algeria. The Boston & Maine Railroad received 10,557 rails from Antwerp during June, and 1754 angles were received at Boston from that port.

Finished Material.—The demand for plates is fair with the market apparently firm at 1.90c. per lb., Pittsburgh base. Shapes are quoted at 2c., Pittsburgh base, but mills have closed on some additional tonnages at 1.90c. on business that has been pending for some time. While the fabricated steel market is not active, it is more so than is usual at this time. Bars are in fair demand at unchanged prices. The aggregate tonnage of reinforcing bar business pending is quite large, but contractors are slow in closing.

Old Material.—The movement of old material out of New England is increasing, although very slowly. Business is confined largely to heavy melting steel, steel turnings, mixed borings and turnings, rolling mill borings and forged and skeleton scrap. Most dealers are holding at $10.50 to $11 a ton on cars for heavy melting steel, while others, with sizable contracts for Pennsylvania delivery, are paying $11 and $11.25. Owners of this material are still reluctant to sell at prevailing prices. New England foundries are evincing practically no interest in textile and machinery cast, being able to supply their needs from local or nearby junk yards.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.50 to $20.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	17.00 to 18.00
Stove plate	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.50 to $11.25
No. 1 railroad wrought	12.00 to 12.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	9.50 to 10.00
Machine shop turnings	8.25 to 8.75
Cast iron borings, chemical	10.00 to 10.50
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap	8.50 to 9.00
Bundled skeleton, long	8.50 to 9.00
Forged flashings	8.50 to 9.00
Bundled cotton ties, long	8.25 to 8.50
Bundled cotton ties, short	8.50 to 9.00
Shafting	15.00 to 15.50
Street car axles	16.50 to 17.50
Rails for rerolling	11.00 to 11.50
Scrap rails	10.50 to 11.00

Cast Iron Pipe.—No decision has been reached on tonnage and kind of pipe Massachusetts will use, bids for which were opened July 8. Boston will open bids July 14 on 1000 tons of 48-in. pipe and 100 tons of specials. Gardner, Mass., has closed bids on 100 tons of 6 and 8-in. pipe, but has made no award. Prices on large pipe are still subject to concessions, but those on small sizes remain firm. Prices quoted in this market are: 6 to 12-in., $55.10 to $56.10 a ton, delivered at common

Boston freight rate points; 4-in., $60.10; larger than 12-in., $54.10 to $55.10. The usual $5 differential is asked on Class A and gas pipe.

Coke.—Connellsville district ovens are making a strong bid to secure New England foundry coke business at $4 to $5 a ton at ovens, or $9.55 to $10.55 a ton delivered, but are securing only an occasional car lot. New Jersey by-product foundry coke has been sold in this territory recently around $11 a ton delivered. The New England Coal & Coke Co. and the Providence Gas Co. are holding to $12 a ton, delivered, within a $3.10 freight rate zone, with shipments about half of those for May. Foundries are withholding specifications against last half contracts in anticipation of a drop in price next month or in September, when the winter stocking season generally starts.

Buffalo

Sales of Pig Iron—Activity in Concrete Bars—Scrap Again Weak

BUFFALO, July 13.—Between 16,000 and 20,000 tons of iron is an aggregate of the orders booked during the past week by Buffalo furnaces. The price in the district remains at $20 base, but outside the district $18.50 to $19, Buffalo, has been made. Some of the larger inquiries noted are one for 3000 tons of foundry from outside the district and one for 4000 to 5000 tons from New England for foundry. The United States Radiator Co. is said to have closed for 36,500 tons of foundry altogether, some of which is for the Dunkirk plant. The Gould Coupler Co. is reported to have bought some basic. Another current inquiry from outside the district is for 1000 tons of foundry and malleable iron. Bethlehem's Lackawanna plant has increased operations to seven furnaces.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$19.00 to $20.00
No. 2X foundry, sil. 2.25 to 2.75	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25	20.50 to 21.50
Malleable, sil. up to 2.25	20.00
Basic	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Bars are quoted at 2.265c. to 2.365c., shapes at 2.265c. and plates at 2.165c. One large mill has increased operations to 80 per cent. Reinforcing bar business is heavy with extensive booking over the past two weeks. One maker took 125 tons for an addition to the Nash-Buffalo factory, 150 tons for a factory for Goodwill Industries, 112 tons for a road for the Rochester Vulcanite Co., 100 tons for an almshouse at Ontario, N. Y., 100 tons for a water tower at Grover Cleveland Park and 600 tons for the cement mill of the Federal Cement Co., Buffalo.

Old Material.—The market, despite the indications of a week ago, is slipping and no buying of moment is expected for some time, and in the case of heavy melting steel, not until Sept. 1. One large mill is offering between $14 to $14.50 for such steel, but many out of town dealers say they cannot afford to ship in at this price, so deliveries have been slow. Heavy shipping is now going on of No. 1 cast scrap bought a week or two ago and stove plate is quite active with two consumers seeking the available tonnage. Generally speaking, not much stock is on hand in dealers' yards, though there are one or two exceptions where dealers figuring on a heavy movement through July have increased the quantity of material on hand.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$14.50 to $14.75
Selected No. 1 heavy melting steel	16.00 to 16.50
Low phosphorus	17.50 to 18.00
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	9.50 to 10.00
Mixed borings and turnings	11.50 to 12.00
Cast iron borings	11.50 to 12.00
No. 1 busheling	15.00 to 15.50
Stove plate	15.00
Grate bars	13.00 to 13.50
Hand-bundled sheets	10.00 to 10.50
Hydraulic compressed	15.00 to 15.50
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	12.75 to 13.25

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.45c.
No. 10 blue annealed sheets	3.80c.
No. 28 galvanized sheets	5.60c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Cincinnati

Scattered Pig Iron Buying—Weakness in Concrete Bars

CINCINNATI, July 13.—Considerable buying in moderate scattered lots for forward delivery characterized the pig iron market this week in the Cincinnati district. Customers have about concluded that prices are scraping bottom and are protecting themselves for the third quarter and the last half against possible rises. Many of the older houses are disposed to get under contract, at least for moderate lots. Sales during the week in all brokerage houses here probably went close to 8000 tons, and prices ruled steady without changes. A report appears general that Tennessee furnaces are well sold up and out of the market on low phosphorus iron. Reports were current that Tennessee was encroaching on Alabama in the Southern territory. New business among southern Ohio district producers was rather quiet and prices ruled steady on foundry iron at $19.50, base furnace, Ironton. Alabama is holding steady at $21, base Birmingham, though it is generally believed that spot business in volume would bring a shading of 50c. Sales of Jackson County silvery iron slumped, buyers wants being apparently well supplied for the time. A north Indiana melter was in the market, but the inquiry was being closely guarded. It was surmised to be for around 700 tons. Other inquiries were quiet and mostly for odd lots. The only inquiry of fair size was from the Lunkenheimer Co. for 300 tons low phosphorus. A north Indiana melter was inquiring for 300 tons of malleable for shipment during August.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$24.19 to $24.69
Alabama fdy., sil. 2.25 to 2.75	24.69 to 25.19
Tennessee fdy., sil. 1.75 to 2.25	24.69
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25	21.39
So. Ohio malleable	20.39 to 21.89

Reinforcing Bars.—The Pollak Steel Co. was awarded 110 tons for Cottage B, Marysville State Reformatory; also 100 tons for the Ambassador Hotel, Akron, Ohio. Quite a number of small industrial jobs are being figured.

Warehouse Business.—Warehouse iron is firm with good demand and sales well sustained. Structural steel is in fair demand. Bars and pipe continue to be leading products in volume.

Finished Material.—Bookings for the week were more than usually heavy, although this is not considered an active period. Advances on bars and structural shapes did not seem to act as much of a deterrent, and several important orders were placed for future delivery, some for stock purposes. Only one item in the list appeared to indicate a weaker trend.

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.20c. to 3.30c.
Reinforcing bars	3.20c. to 3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb.	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in.	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

Reinforcing bars were not firm at quotations. Structural steel maintained prices in good shape with a better than fair demand. No large projects are on the tapis just at present, but there is no lack of confidence. Blue annealed sheets are quiet with prices stationary at 2.30c., base Pittsburgh. Black sheets continue to sell at around 3.05c. to 3.10c., base Pittsburgh, and galvanized at 4.20c. to 4.25c., base Pittsburgh. Steel bars are quoted at 2c., base Pittsburgh, for lots of 100 tons or more, but 2.10c. is being done for smaller lots. Tank plates were in fairly active demand at 1.90c., base Pittsburgh. Structural shapes are fair in demand at 2c., base Pittsburgh. Nails and wire goods have been only in fair demand, and small lots have been sold for immediate delivery. Common wire nails continue at $2.65 per keg, Ironton or Pittsburgh, and plain wire at $2.50 per 100 lb., Ironton or Pittsburgh. Fabricators of gas holders report sufficient work in sight to keep them operating at capacity for several months to come. Several good structural jobs are to be awarded this month.

Coke.—Domestic by-product coke in Michigan territory held its 25c. advance of the week previous fairly well. By-product foundry coke was unchanged at $9.50, Detroit ovens, for outside shipment. By-product and beehive coke sales have been more active at unchanged prices, larger customers covering with contracts for forward delivery. Spot orders have been nothing unusual this week.

Scrap.—Prices are unchanged, with movement slow. Among the mills in this territory there are several shutdowns for repairs and inventory. Railroad lists featured rails. The Chesapeake & Ohio list carried 12,000 tons in all grades, of which 4000 tons were rails and 100 tons uncut structural. The Norfolk & Western total was 8000 tons, of which 2500 tons were rails. Of the Southern list 2000 tons covered rails.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel	$12.50 to	$13.00
Scrap rails for melting	12.50 to	13.00
Short rails	17.50 to	18.00
Relaying rails	27.00 to	27.50
Rails for rolling	14.00 to	14.50
Old car wheels	13.00 to	13.50
No. 1 locomotive tires	17.00 to	17.50
Railroad malleable	15.50 to	16.00
Agricultural malleable	14.50 to	15.00
Loose sheet clippings	7.00 to	7.50
Champion bundled sheets	9.00 to	9.50
	Per Net Ton	
Cast iron borings	7.00 to	7.50
Machine shop turnings	6.50 to	7.00
No. 1 machinery cast	17.00 to	18.00
No. 1 railroad cast	14.50 to	15.00
Iron axles	20.00 to	20.50
No. 1 railroad wrought	9.00 to	9.50
Pipes and flues	8.00 to	8.50
No. 1 busheling	9.50 to	10.00
Mixed busheling	7.00 to	7.50
Burnt cast	7.50 to	8.00
Stove plate	9.00 to	9.50
Brake shoes	9.50 to	10.00

Birmingham

Large Consumers Still Need Pig Iron—Steel Output Maintained

BIRMINGHAM, July 13.—In the last two weeks selling of pig iron has been steady in small lots. Larger consumers are still to buy for all requirements during the quarter and claim to expect lower prices. Furnace interests intimate that no price has been fixed for the fourth quarter, but that there is nothing to warrant a decline. Basic iron output was increased some in the resumption of the No. 3 blast furnace at Ensley of the Tennessee Coal, Iron & Railroad Co. Fourteen furnaces are still on foundry iron. The Gulf States Steel Co. will take the month of August in relining and repairing a blast furnace which has been active a year longer than ever before on a lining. The Sloss-Sheffield Steel & Iron Co. will have to reline and repair its No. 4 furnace at North Birmingham but will resume operation at its No. 3 furnace first. Foundry make in Alabama will be maintained through the remainder of the year and it is emphasized that surplus stocks will not be increased. No comment is made on receipt in this district of 2000 tons of English iron.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$21.00 to $22.00
No. 1 foundry, 2.25 to 2.75 sil.	21.50 to 22.50
Basic	21.00 to 22.00
Charcoal, warm blast	30.00

Rolled Steel.—Steel output is being maintained. The wire demand has not been so good lately as hoped for. Steel rails, cotton ties, bands, railroad accessories, plates and shapes are in strong demand. Smaller industries using sheets are thinking of establishing here, according to the signs, such as a roofing plant which has just made the decision. Soft steel bars, tank plates and structural shapes are quoted at 2.15c. to 2.25c., base Birmingham. Steel rails are to be moved down the Warrior River in quantity this month for Japan through the port of Mobile. The Gulf States Steel Co. will close down its open-hearth furnaces for two weeks in August for repairs.

Cast Iron Pipe.—Production of cast iron pressure pipe in Alabama is somewhat increased with the centrifugal pipe shop of American Cast Iron Pipe Co. in operation. Deliveries are extended, in some instances as much as 60 and 90 days. Quotations are firm on a $40 per ton base, 6-in. pipe and larger.

Coke.—By-product coke works in Alabama are all operating to capacity with no accumulation of merchant stocks. Quotations are still made at $5.50 to $6 per net ton.

Old Material.—The slight improvement mentioned last week is still under way. With the exception of heavy melting steel and turnings and borings there has been no change in prices for some time. Heavy melting steel is being quoted at $13 again. The Gulf States company, with shutdown planned for August, is buying but little. The other large consumer is holding off until stocks under contract have been used.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	12.00 to 13.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.00 to 17.00
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	7.50 to 8.00
Cast iron borings	7.50 to 8.00
Rails for rolling	15.00 to 16.00

Annual reports and other papers read at the ninth annual convention of the Southern Metal Trades Association, at Macon, Ga., on May 5 and 6, have been gathered into a "year book" of 40 pages which has just been distributed. The new code of ethics of the association appears on the inside front cover. W. E. Dunn, Jr., Healey Building, Atlanta, is secretary.

Dull Scrap Market in Canada

TORONTO, July 13.—A state of stagnation prevails. The limited demand that now exists is confined almost entirely to small tonnage lots for immediate delivery. Consumers in the Hamilton, Ont., district are furnishing the greater part of business in the Ontario district. In the Montreal market the scrap demand has fallen off during the week, both for local consumption and on export account. The only feature of interest was a softening in dealers' buying prices in the Montreal market. The decline was 50c. per ton on practically all commodities. This drop in price did not stimulate demand, but on the contrary appears to have further unsettled the market. Dealers are showing but little interest in adding to their holdings, it being reported that yards are sufficiently well stocked to take care of all current needs. Toronto dealers made no revision in their price lists.

Dealers' buying prices are as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$9.50	$6.00
Machine shop turnings	9.50	6.00
Wrought pipe	7.00	6.00
Rails	11.00	8.50
No. 1 wrought scrap	11.00	13.00
Heavy melting steel	10.50	7.50
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Per Net Ton		
Standard car wheels	16.00	16.00
Malleable scrap	13.00	12.00
Stove plate	12.00	13.00
No. 1 machinery cast	16.00	18.00

Valleys at a 75 Per Cent Ingot Rate

YOUNGSTOWN, July 13.—Steel production this week in the Mahoning and Shenango Valleys has regained its recent rate, following a lull the preceding week for mid-year repairs. Steel ingot output is now above 75 per cent, with 52 of 68 open-hearth furnaces active, against 40 the previous week. Of this number, 38 are independent units. Sheet mill schedules show 99 of 127 mills under power, with pipe mills at 85 per cent.

The Youngstown Sheet & Tube Co. is averaging 75 per cent in this district, the Republic Iron & Steel Co. 70 per cent, while the Trumbull Steel Co. and the Sharon Steel Hoop Co. are above 90 per cent. Except for six tin mills, which are idle for installation of new equipment, the Trumbull company has all departments in operation.

The Carnegie Steel Co. reports a gain this week of 86 per cent at the Ohio works and 85 per cent in rolling mill departments.

Fabricators and steel car interests are averaging 70 to 90 per cent.

Scrap Orders at Detroit Balance Production

DETROIT, July 13.—While there have been no changes in the prices on waste material in the district except on long turnings, which registered a 25c. increase, the market has every tendency toward firmness. Lettings for the month developed higher prices than for some time past, and current orders are sufficient to take care of the large tonnage from producers.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.25 to $13.75
Borings and short turnings	9.00 to 9.50
Long turnings	8.00 to 8.50
No. 1 machinery cast	17.00 to 18.00
Automobile cast	21.50 to 22.50
Hydraulic compressed	11.00 to 11.50
Stove plate	13.50 to 14.50
No. 1 busheling	11.25 to 11.75
Sheet clippings	7.00 to 7.50
Flashings	10.25 to 10.75

REINFORCING STEEL

Award of 4000 Tons for Harbor Improvement at Mobile, Ala., Brings Total to 8400 Tons

The outstanding award of concrete reinforcing bars, as reported to THE IRON AGE in the last week, calls for 4000 tons for a pier and harbor improvement at Mobile, Ala. A building in New York will require 1200 tons, and small awards bring the total to nearly 8400 tons. Jobs pending call for more than 8100 tons, including 1500 tons for a United States Veterans' Hospital at Northport, L. I., 1000 tons for a warehouse in New York and 900 tons for a cold storage plant for the Baltimore & Ohio Railroad in Philadelphia.

BOSTON, 145 tons, Post Office, to Joseph T. Ryerson & Son.

NORWALK, CONN., 100 tons, sewage disposal plant, to Concrete Steel Co.

NEW YORK, 1200 tons, Maltz Building, Varick and Charlton Streets, by White Construction Co., general contractor, to Concrete Steel Co.

NEW YORK, 600 tons, foundation for New York Steam Corporation Building, by Foundation Co., general contractors, to Jones & Laughlin Steel Corporation.

NEW YORK, 250 tons, subway work, by John F. Cogan, general contractor, to Concrete Steel Co.

JAMESTOWN, N. Y., 220 tons, Art Metal Construction Co. plant, to Truscon Steel Co.

MOBILE, ALA., 4,000 tons, pier and harbor improvement, by Doulette & Ewing, general contractors, to Tennessee Coal, Iron & Railroad Co.

DAYTON, OHIO, 300 tons, administration and laboratory building for Wright Air Field, to Bourne-Fuller Co.

CLEVELAND, 400 tons, tower for Union Terminals Building, to Bourne-Fuller Co.

NORTH CHICAGO, 200 tons, hospital buildings for United States Veterans' Bureau, to American System of Reinforcing.

CHICAGO, 100 tons rail steel, apartment building, 500 Barry Avenue, to Calumet Steel Co.

CHICAGO, 200 tons, Luke O'Toole elementary school, to Jones & Laughlin Steel Corporation.

CHICAGO, 170 tons, Garfield Park Hospital, to Concrete Engineering Co.

CHICAGO, 250 tons, apartment building, Lake Shore Drive, to Inland Steel Co.

CHICAGO, 225 tons, Littler-Davis Co. Building, to Inland Steel Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

BOSTON, 400 tons, dormitory, Harvard Medical School.

MALDEN, MASS., 150 tons, garage for Malden Electric Co.

LYNN, MASS., 295 tons, sewage disposal plant.

NORTHPORT, L. I., 1,500 tons, United States Veterans' Hospital; contract not let.

NEW YORK, 1,000 tons, warehouse, Lincoln Safe Deposit Co.; contract not let.

PHILADELPHIA, 900 tons, cold storage plant for Baltimore & Ohio Railroad.

PHILADELPHIA, 107 tons, Olney public school.

PHILADELPHIA, 168 tons, Hancock and Wildey public school.

ALLENTOWN, PA., 240 tons, American Hotel.

BOYERTOWN, PA., 350 tons, building for the Boyertown Casket Co.

ROANOKE, VA., 600 tons, State highway bridge.

WARREN, OHIO, 800 tons, bridge.

NORWOOD, OHIO, 115 tons for Chevrolet plant.

DAYTON, OHIO, 500 tons, Delco Light Co.

CHICAGO, 100 tons, Northwestern Stove Repair Co. plant; Frank D. Chase, Inc., engineer.

CHICAGO, 100 tons, garage for Swift & Co., Union Stock Yards.

CHICAGO, 150 tons, plant for Chicago Screw Co.; John Fischer, architect.

CHICAGO, 160 tons, plant for American Colortype Co.; bids on general contract taken.

CHICAGO, 125 tons, garage for L. W. Shanesy & Co., Wolfram Street and Sheffield Avenue; A. Tharnstrom, general contractor.

EVANSTON, ILL., 300 tons, sorority houses for Northwestern University; Milton P. Tilly, Chicago, general contractor.

FABRICATED STEEL

Awards at Fairly High Rate with 29,000 Tons—Chicago Building Takes 4500 Tons

Structural steel awards for the week totaled nearly 29,000 tons, a fairly high aggregate for this time of the year. A Chicago athletic club will take 4500 tons and a Detroit office building 3350 tons. The remainder of the bookings are for relatively smaller jobs well scattered throughout the country. Among the jobs pending, totaling more than 13,000 tons, the largest is 3500 tons for an apartment hotel in Philadelphia. Bookings reported include:

NEW YORK, 562 tons, in the following jobs reported by the Structural Steel Board of Trade of New York: Extension to cableway trestle in Brooklyn, to Berlin Construction Co.; building for Home Title Insurance Co., Jamaica, L. I., to Eidlitz & Ross; theater at Richmond Hill, L. I., to George A. Just Co.

NEW YORK, 1800 tons, Pythian Temple, Seventieth Street, to Hay Foundry & Iron Works.

NEW YORK, 1500 tons, apartment building, Park Avenue, to Harris Structural Steel Co.

NEW YORK, 1200 tons, office building, Fifty-seventh Street, to Levering & Garrigues Co.

NEW YORK, 900 tons, loft building, Thirty-second Street, to Eastern Structural Steel Co.

BROOKLYN, 350 tons, boiler house, American Sugar Refining Co., Stone & Webster, Inc., engineers, to Phoenix Iron Co.

ENGLEWOOD, N. J., 250 tons, highway bridge, to American Bridge Co.

PHILADELPHIA, 1500 tons, Medico-Chirurgical building at University of Pennsylvania, to American Bridge Co.

CAMBRIDGE, MASS., 350 tons, additional unit, Harvard Business School, to New England Structural Co.

WHITE PLAINS, N. Y., 400 tons, service station for International Motor Corporation, to American Bridge Co.

MAMARONECK, N. Y., 350 tons, bridge for New York, New Haven & Hartford Railroad, to American Bridge Co.

POUGHKEEPSIE, N. Y., 200 tons, dormitory for Vassar College, to Porcupine Co.

UTICA, N. Y., 1100 tons, office building for Utica Gas & Electric Co., to American Bridge Co.

MECHANICVILLE, N. Y., 375 tons, buildings and conveyors for West Virginia Pulp & Paper Co., to Bethlehem Construction Co.

ROCHESTER, N. Y., 500 tons, Eastman School of Music, to Leach Steel Corporation.

PITTSBURGH, 650 tons, four coal barges, Valley Camp Coal Co., to Jones & Laughlin Steel Corporation.

PITTSBURGH, 1325 tons, six covered barges, Carnegie Steel Co., to American Bridge Co.

JACKSONVILLE, FLA., 700 tons, Greenleaf-Crosby Building, to Lehigh Structural Steel Co.

NORTHERN PACIFIC, 900 tons, girder spans for Minnesota and Montana, to American Bridge Co.

DULUTH, MINN., 570 tons, bascule bridge, to American Bridge Co.

RACINE, WIS., 700 tons, bridge, to Milwaukee Bridge Co.

NICKEL PLATE RAILROAD, 250 tons, bridge at Muncie, Ind., to McClintic-Marshall Co.

DETROIT, 400 tons, Detroit Gas Co., to McClintic-Marshall Co.

DETROIT, 3350 tons, Berrien & Eaton office building, to Whitehead & Kales Co.

DETROIT, Chevrolet Motor Co., 1200 tons, factory building, to Russell Wheel & Foundry Co.

BUFFALO, 600 tons, kiln building for Great Lakes Corporation, to Kellogg Structural Steel Co.

CHICAGO, 4500 tons, Midland Athletic Club, to American Bridge Co.

YOSEMITE NATIONAL PARK, 700 tons, Sentinel Hotel, to Central Iron Works, San Francisco.

RICHMOND, CAL., 300 tons, warehouse for Standard Sanitary Mfg. Co., to Western Iron Works, San Francisco.

ROSEVILLE, CAL., 258 tons, car repair shop for Pacific Fruit Express Co., to Dyer Brothers, San Francisco.

SAN FRANCISCO, 250 tons, apartment building, Vallejo Street, to Western Iron Works.

HONOLULU, 950 tons, Pier No. 11 for Harbor Commission, to California Steel Co., San Francisco.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

BOSTON, 550 tons, dormitory, Harvard Medical School.

QUINCY, MASS., 125 tons, Masonic Temple, refigured.

PHILADELPHIA, 1000 tons, office building on Walnut Street for Chancellor Realty Corporation.

PHILADELPHIA, 800 tons, auditorium for University of Pennsylvania.

NEWARK, N. J., 1200 tons, State highway bridge.

PHILADELPHIA, 600 tons, dining room for Girard College.

PHILADELPHIA, 3500 tons, Wellington apartment hotel.

POTTSTOWN, PA., 600 tons, hotel.

NORWOOD, OHIO, Chevrolet Motor Co., 110 tons.

PENNSYLVANIA RAILROAD, 500 tons, bridge repairs.

BRIGANTINE, N. J., 500 tons, hotel.

CHESAPEAKE & OHIO, bridge at Cincinnati over Ohio river, tonnage not stated; C. J. Johns, Richmond, Va., chief engineer.

WASHINGTON COURT HOUSE, OHIO, 1000 tons.

CHICAGO, 500 tons, stone boxes for Great Lakes Dredge & Dock Co.

CHICAGO, 400 tons, Carnelia-Stratford apartment hotel.

SPRINGFIELD, ILL., 750 tons, Farmers State Bank.

LITTLE ROCK, ARK., 500 tons, office building.

SAN FRANCISCO, 400 tons, Mission junior high school; bids closed July 14.

Refractories for Open-Hearth Furnaces

Refractories for open-hearth steel furnaces are discussed in Bulletin 23 of the series of mining and metallurgical investigations under the auspices of the Carnegie Institute of Technology, the United States Bureau of Mines, and the Mining and Metallurgical Advisory Boards at Pittsburgh. The title of the bulletin is "Service Conditions of Refractories for Open-Hearth Steel Furnaces" and the authors are B. M. Larsen, F. W. Schroeder, both of the Bureau of Mines, and E. N. Bauer and J. W. Campbell, research fellows of the Carnegie institute.

There are six main chapters discussing service conditions in open-hearth plants in general, the source and composition of dusts in the open-hearth furnace atmosphere, changes in refractory bodies during service in such furnaces, some characteristics of temperature distribution and heat flow in open-hearth furnace linings, probable causes of failure of refractories in such furnaces, and furnace design in its relation to its effect on refractories. There are 21 valuable tables and 37 illustrations distributed through the 126 pages.

Railroad Equipment

The Chesapeake & Ohio is in the market for 500 bodies for 70 ton hopper cars.

The Norfolk & Western is asking for prices on 250 flat cars.

Orders entered by the Morgan Construction Co., Worcester, Mass., for producer-gas machines in the first half of this year were as follows: Weirton Steel Co., 10; Youngstown Sheet & Tube Co., 9; Sharon Steel Hoop Co., 4; Bethlehem Steel Co. (Sparrows Point works), 3; American Steel & Wire Co. (Worcester works), 2. In addition, the company's European agents received orders from the Tata Iron & Steel Co. of India for 4 and from the Grovesend Tinplate Co., South Wales, for 1, making a total of 33.

Officers for the ensuing year have been elected by the Purchasing Agents Association of Indiana as follows: President, Frank C. Thompson, Link Belt Co.; vice-president, Walter W. Ward, L. S. Ayres & Co.; secretary, R. E. Kennedy, Esterline-Angus Co.; treasurer, S. M. Raymond, Diamond Chain & Mfg. Co.; director, D. F. Roach, Terre Haute, Indianapolis & Eastern Traction Co. All the officers are from Indianapolis except Mr. Roach, of Terre Haute.

Total apparent consumption of babbitt metal in May, based on reports received by the Department of Commerce from 27 firms, was 4,797,038 lb., compared with 5,229,199 lb. in April and 5,081,668 lb. in May, 1925. Sales by manufacturers in May were 3,640,369 lb., against 3,817,253 lb. in April.

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	July 7	July 8	July 9	July 10	July 12	July 13
Lake copper, New York	14.00	14.00	14.12½	14.12½	14.12½	14.12½
Electrolytic copper, N. Y.*	13.62½	13.75	13.75	13.75	13.82½	13.87½
Straits tin, spot, New York	62.00	62.25	62.25	....	62.25	62.62½
Lead, New York	8.25	8.25	8.25	8.25	8.30	8.40
Lead, St. Louis	8.00	8.00	8.00	8.10	8.10	8.20
Zinc, New York	7.60	7.62½	7.70	7.75	7.85	7.87½
Zinc, St. Louis	7.25	7.27½	7.35	7.40	7.50	7.52½

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, July 13.—All the markets are stronger and interest on the part of consumers has increased. Statistics for copper and zinc have helped those markets. The tin market has been generally quiet but lead has turned stronger.

Copper.—The market has been gradually growing stronger until today electrolytic copper was at a minimum of 14.12½c., delivered, with some producers asking higher prices. Sales are reported on nearly each day as the market has advanced. Today consumers are somewhat shy because they think that history may repeat itself and the market recede as it has frequently in the past. Two factors, however, seem to be unfavorable to a weaker market just at present. One is the announcement of the statistics for June, which show a decline in available copper of about 14,000 tons for the month, 3000 tons of this being decrease in stocks of refined metal with the rest blister copper. The other factor is the prospect of an early functioning of the Copper Export Trading Corporation. The market is in a good technical position and is stronger than it has been for some time. Some metal was available yesterday at about 14.05c. to 14.07½c., delivered, but most producers were firm at 14.12½c., which is easily the minimum today. Lake copper is quoted at 14.12½c., delivered. There is some talk of a shortage of electrolytic copper but this is not taken seriously yet.

Tin.—The market is without special feature. Sales for the week have been about 700 tons, nearly all taken by dealers. On July 8 and 9 a few consumers made light purchases of September-October metal, but they are buying very little spot or July delivery, although there are always a few who buy small lots for these positions. This is taken to indicate that consumers are well covered for early needs. Yesterday the market was virtually stagnant and today it has not been much better. Spot Straits tin, which has been largely nominal all the week, was quoted today, also largely nominal, at 62.62½c., New York. London quotations today were about £1 higher than a week ago, with spot standard quoted at £278 5s., future standard at £277 17s. 6d. and spot Straits at £287 5s. Arrivals thus far this month have been 3725 tons, with 5250 tons reported afloat.

Lead.—This morning the American Smelting & Refining Co. advanced its New York contract price from 8.25c. to 8.40c. One important reason for this was evidently the stronger market in London. Although there has been a fair amount of business transacted recently, there has been no large buying movement to warrant the advance. In recent days the market has been stronger in St. Louis and today is quoted at 8.20c.

Zinc.—Decided strength has developed in prime Western zinc which today is 30 points higher than a week ago. The quotation is 7.22½c. to 7.25c., St. Louis, or 7.87½c. to 7.90c., New York. Higher prices in London and fairly good buying by galvanizers are the principal causes. Another factor was the announcement yesterday of statistics for June which showed a reduction in stocks, the first in several months, amounting to about 4000 tons, together with a reduction in active retorts of about 10,000 as compared with the close of May.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c. with shot nickel at 36c. per lb. Electrolytic nickel is obtainable at 39c.

Antimony.—The market is practically unchanged and Chinese metal for spot delivery is obtainable today at 14c., New York, duty paid. July-August shipments from China are quoted at about 13c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	63.50c. to 64.50c.
Tin, bar	66.50c. to 67.50c.
Copper, Lake	15.25c.
Copper, electrolytic	15.00c.
Copper, casting	14.75c.
Zinc, slab	8.00c. to 8.50c.
Lead, American pig	8.75c. to 9.25c.
Lead, bar	11.00c. to 12.00c.
Antimony, Asiatic	14.00c. to 15.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½ guaranteed	39.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	68.00c.
Tin, bar	70.00c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.40c.
Lead, American pig	9.00c.
Antimony, Asiatic	16.50c.
Lead, bar	11.00c.
Babbitt metal, medium grade	22.00c.
Babbitt metal, high grade	72.50c.
Solder, 50-50	40.75c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	18⅞c. to 19⅞c.
Copper, hot rolled	22½c. to 23½c.
Copper, cold rolled, 14 oz. and heavier	24¾c. to 25¾c.
Seamless Tubes—	
Brass	23½c. to 24½c.
Copper	24¼c. to 25¼c.
Brazed Brass Tubes	26⅞c. to 27⅞c.
Brass Rods	16⅝c. to 17⅝c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.00c.
Zinc sheets, open	13.50c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are unchanged. Zinc sheets were advanced this week ¼c. to 11.50c. Lead full sheets are at the advance made June 17.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.50c.
Lead (full sheets)	12.00c. to 12.25c.
Seamless Tubes—	
High brass	23.50c.
Copper	24.25c.
Rods—	
High brass	16.62½c.
Naval brass	19.37½c.
Wire—	
Copper	15.87½c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

	Base per Lb.
Sheets—	
High brass	18⅞c. to 19⅞c.
Copper, hot rolled	22½c.
Copper, cold rolled, 14 oz. and heavier	24¾c.
Zinc	12.00c.
Lead, wide	11.08c.
Seamless Tubes—	
Brass	23½c. to 25c.
Copper	24¼c. to 25¾c.
Brazed Brass Tubes	26⅞c. to 29½c.
Brass Rods	16⅝c.

CHICAGO, July 13.—The demand for copper has been steady and in good volume and the price has advanced slightly over that of a week ago. The price of tin has advanced under the influence of a substantial buying movement. Old metals are firm and the demand has been steady and in good volume throughout the week. We quote, in carload lots, Lake copper, 14.25c.; tin, 64c.; lead, 8.25c.; zinc, 7.40c.; in less than carload lots, antimony, 15c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.50c.; red brass, 9c.; yellow brass, 7.75c.; lead pipe, 7c.; zinc, 5c.; pewter, No. 1, 35c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 17.75c., all being dealers' prices for less than carload lots.

Copper in 1925

Final statistics of the production of copper in the United States in 1925 have been compiled by the United States Bureau of Mines. The smelter production of copper from domestic ores showed a small increase and established a new peace time production record. Refinery production from domestic sources also increased, but refinery production from foreign sources decreased sufficiently to make the total refinery production for 1925 lower than that for 1924. Imports of unmanufactured copper and exports of metallic copper also decreased. Domestic withdrawals of new copper increased in 1925 and stocks of refined copper were only a little over half as large as stocks at the end of 1924. Blister stocks showed an increase.

The total production of refined copper in 1925, according to the data, was 2,205,000,000 lb., a decrease of 55,000,000 lb. from that in 1924. The smelter production of primary copper from domestic sources last year amounted to 1,674,869,886 lb., an increase of approximately 2 per cent over 1924. Stocks of refined copper on Jan. 1, 1926, are reported to have been 124,000,000 lb., as compared with 243,000,000 lb. on Jan. 1, 1925. The consumption of new refined copper in the United States last year, as represented by metal withdrawn from the total year's supply on domestic account, was 1,401,012,091 lb., as compared with 1,354,742,564 lb. in 1924.

Exports of refined copper in ingots, bars, rods and other forms in 1925 were 968,065,437 lb., as compared with 1,009,624,992 lb. in 1924.

The W. C. Kelly Barge Line has turned over to the Inland Waterways Corporation (Federal Barge Line) its towboat the *George T. Price* and a fleet of barges. The boat and barges are to be used in the Memphis-St. Louis river service. The barge line was a private enterprise of those controlling the Kelly Axe & Tool Co., Charleston, W. Va., but there has been no connection between the two companies and the plans of the Kelly Axe & Tool Co. to use the inland waterways for the fetching of its raw materials and shipping of finished products are not affected by the transaction.

Tests of corrugated metal culverts for railroad purposes have been made by the roadway committee of the American Railway Engineering Association, and the results are contained in a 36-page booklet published by the Armco Culvert and Flume Manufacturers' Association, Middletown, Ohio. The subject matter was presented as a report of the committee at the annual convention of the American Railway Engineering Association last March.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	12.00c.	13.25c.
Copper, heavy and wire	11.50c.	12.25c.
Copper, light and bottoms	9.75c.	11.00c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	8.00c.
Heavy machine composition	8.75c.	10.00c.
No. 1 yellow brass turnings	8.50c.	9.25c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	7.25c.	7.50c.
Lead, tea	5.50c.	6.25c.
Zinc	4.25c.	4.75c.
Sheet aluminum	17.00c.	19.00c.
Cast aluminum	17.00c.	19.00c.

Manganese Ore Output Increases in 1925

The shipments of high-grade manganese ore, containing 35 per cent or more of manganese, from the mines in the United States in 1925 made a large increase over the shipments in 1924. The shipments in 1925 by 42 producers amounted to 98,324 gross tons, as compared with 56,515 tons by 39 in 1924, an increase of 74 per cent. This increase was due to the shipments from Montana. This State produced considerably more high-grade manganese ore than all the other States combined, the Butte District having furnished 47,507 tons of rhodochrosite, which was utilized mainly in the manufacture of ferromanganese. The second largest individual shipper of such ore was the Crescent mine in the Olympic mountain region, Clallam County, Washington, from which the shipments for the year were 8,113 tons, averaging 51.64 per cent manganese.

The shipments of domestic ore containing 10 to 35 per cent manganese (ferruginous manganese ore) decreased in 1925 from 286,470 tons, valued at $929,390, to 267,252 tons, valued at $915,316. This decrease is due to the falling off of production in Colorado and Minnesota, whereas in Michigan and New Mexico decided increases were made.

The domestic shipments of ore containing from 5 to 10 per cent manganese in 1925 were approximately 100 per cent greater than in 1924, due to more extensive use of ores of this grade (manganiferous iron ores) in the manufacture of pig iron containing small percentages of manganese.

Builds Highway Coaches with Aluminum Bodies

A gasoline electric road coach for the highway has been developed with an aluminum and aluminum alloy body. It is the production of the Versare Corporation, Albany, N. Y., collaborating with the Westinghouse Electric & Mfg. Co., East Pittsburgh, and the Aluminum Co. of America.

The coach has no chassis, and the body, of a bridge-like truss construction, is mounted upon two four-wheel bogies, corresponding to those used on railroad cars. These bogies are controlled from a single steering wheel, and it is claimed that a coach of 36 ft. length may be turned in a 40-ft. highway.

The motive power is furnished by a 120-hp. Waukesha, six-cylinder, gasoline engine connected with a 40-kw. Westinghouse generator. This furnishes the current which operates the 28-hp. 175-volt Westinghouse motors, one mounted on each of the two bogies. It is claimed that the vehicle will achieve a speed of 35 miles per hr. Westinghouse air brakes are used. The coach has a carrying capacity of 72 passengers, and two of them have already been put in use by the Chicago & Alton Railroad to haul passengers between Jacksonville, Ill., and St. Louis, a distance of 94 miles.

D. FAIRFAX BUSH

D. B. MEACHAM

J. K. POLLOCK

W. T. SHEPARD

LONG IN PIG IRON TRADE

D. Fairfax Bush for 43 Years and Daniel B. Meacham for 37 Years

D. Fairfax Bush, in retiring from the chairmanship of the board of Rogers, Brown & Crocker Brothers, Inc., as reported by THE IRON AGE last week, closes an active participation of 43 years in the pig iron business. A native of Boston, he came to New York at the age of 17 and obtained a position with J. P. Morgan & Co., then known as Drexel, Morgan & Co. In 1883 he went with Crocker Brothers as a salesman and in 1898 was made a junior partner. Following the death of George A. Crocker in 1906, he became the senior partner. When Crocker Brothers and Rogers, Brown & Co. were consolidated a year ago, he was elected chairman of the board of directors.

Daniel B. Meacham, who retires from the vice-chairmanship of Rogers, Brown & Crocker Brothers, Inc., became connected with Rogers, Brown & Co. in 1889. Before that he was vice-president and general manager of the Norton Iron Works, Ashland, Ky. When Mr. Meacham entered the pig iron business the firm was Rogers, Brown & Meacham. In the early part of his connection with the firm he was located in St. Louis, but in 1891 he returned to Cincinnati. Mr. Meacham has been president of the Hanging Rock Iron Co., vice-president Cleveland Furnace Co. and the Union Furnace Co., director of the Iroquois Iron Co., Empire Iron & Steel Co. (predecessor of the Replogle Steel Co.), Rogers-Brown Ore Co. and the Detroit Furnace Co.

J. K. Pollock, Cincinnati, first vice-president, and W. T. Shepard, Buffalo, vice-president, are also retiring officers. They have been connected with Rogers, Brown & Co. for many years and both are widely known in the foundry trades of their respective sections. Mr. Pollock was long vice-president of the Hanging Rock Iron Co., Hanging Rock, Ohio, and Mr. Shepard was secretary of the Tonawanda Iron & Steel Co. in the years of its operation of the two Niagara furnaces at North Tonawanda, N. Y.

Rogers, Brown & Crocker Brothers, Inc., Elect New Vice-Presidents

At the annual meeting of the stockholders of Rogers, Brown & Crocker Brothers, Inc., held in New York, Tuesday, July 13, announcement was made of the retirement of Messrs. Bush, Meacham, Pollock and Shepard. The following were elected directors of the company for the ensuing year: A. A. Fowler, D. Fairfax Bush, George A. Crocker, Jr., C. H. Newcomb, Louis H. Miller, F. W. Miller and George R. Sullivan.

At a meeting of the board of directors the following were elected vice-presidents of the company: George R. Sullivan, Thomas A. Wilson, Harwood Wilson, F. W. Miller, F. W. Bauer and S. B. Morison. As stated heretofore, the company is headed by Arthur A. Fowler, president, and the offices of chairman and vice-chairman are not continued.

All of the above vice-presidents have been managers in charge of offices for several years—Mr. Sullivan at Philadelphia, Thomas A. Wilson at Pittsburgh, Harwood Wilson at Cleveland, Mr. Miller at Cincinnati, Mr. Bauer at Chicago, and Mr. Morison at St. Louis.

Itinerary Arranged for Foreign Foundrymen in September

Plans have been formulated for the entertainment of foundrymen from various European foundry associations who are scheduled to attend the second international foundrymen's congress and the thirtieth annual convention and exhibition of the American Foundrymen's Association at Detroit the week of Sept. 27. Plant visitations and entertainment for the delegation are being arranged by committees in New York, Philadelphia, Buffalo, Detroit, Chicago, Cleveland and Pittsburgh.

The itinerary as planned from the date of arrival in this country to the date of departure, Oct. 13, is in general as follows: On the day following their arrival in New York, Monday, Sept. 20, a dinner of welcome will be given at a New York hotel by the American Foundrymen's Association. A pre-convention tour will follow, including a visit to Philadelphia foundries and the Sesquicentennial exhibition under the auspices of Philadelphia foundrymen on Sept. 22 and 23. Friday, Sept. 24, will be spent on a train from Philadelphia to Buffalo, and on the following day, Sept. 25, various plants in that city will be visited, including a reception by Buffalo foundrymen. Sunday, Sept. 26, will include visits to Niagara Falls and vicinity. The party will leave for Detroit that evening by boat in time to attend the convention, Monday, Sept. 27.

The post-convention tour includes a reception by Chicago foundrymen Monday, Oct. 4, and plant visitations in that city the following day. Ohio foundrymen will tender an official dinner to the delegation in Cleveland, Oct. 6, following visits to various plants. Pittsburgh will be visited on Friday and Saturday, Oct. 8 and 9, an official dinner by the Pittsburgh Foundrymen's Association being scheduled for Friday evening. A daylight trip to Washington on Sunday, Oct. 10, will precede a comprehensive sight-seeing trip in that city on Monday, Oct. 11. A final day is scheduled for New York, Tuesday, Oct. 12, the party sailing for Europe Oct. 13.

The American Sheet & Tin Plate Co. is building a new boiler plant to serve its Cambridge works, Cambridge, Ohio, for which a 400-hp. V-type boiler will be furnished by the Heine Boiler Co., St. Louis.

PERSONAL

Malcolm F. McConnell, who, as announced in THE IRON AGE of July 1, was appointed general superintendent Mingo and Bellaire Works, Carnegie Steel Co., was born in New Castle, Pa., Nov. 3, 1880, and was educated in the grade and high schools of New Castle, and at the University of Pittsburgh, from which he was graduated in 1902 as mechanical engineer. During college vacations he worked at the Sharon works of the old National Steel Co., and took permanent work there when he completed his course. On Jan. 1, 1905, he joined the operating staff at the New Castle, Pa., works Carnegie Steel Co., as steam engineer, and on July 1, 1909, he was made assistant general superintendent of the Mingo works. He is a member of the American Society of Mechanical Engineers; Engineers Society of Western Pennsylvania, and the American Iron and Steel Institute.

M. F. M'CONNELL

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George W. Vreeland, who, as of July 1, was made assistant general superintendent of Mingo and Bellaire works, Carnegie Steel Co., was born in Passaic, N. J., Sept. 23, 1875. He was educated in the New York public schools and studied two years in the College of the City of New York, and attended night course at Cooper Union, while working for the Garvin Machine Co., New York. Subsequently entering Cornell University, he was graduated in 1898 as a mechanical engineer, specializing in electrical engineering and chemistry. His first steel industry connection was with the Cambria Steel Co., Johnstown, Pa. He served that company for three years, as draftsman, steam and experimental engineer, and for two years as master mechanic of the blast furnace department. In the latter capacity he supervised the erection of two blast furnaces, engine and boiler houses, river dam, and the general rebuilding of the plant. He joined the Carnegie Steel Co. on Sept. 1, 1901, as master mechanic of blast furnaces at Duquesne works, where he assisted in designing and erecting furnaces Nos. 5 and 6. He was made assistant superintendent of blast furnaces at Duquesne works in 1904, and, in 1908, was made superintendent of blast furnaces of Mingo, Bellaire and Steubenville works.

G. W. VREELAND

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Frank Herzog has been appointed chief draftsman, Wickwire Spencer Steel Co., Buffalo, and assumed his new duties on July 1. K. H. Marsh is the chief engineer, having joined the company several months ago, as announced in THE IRON AGE of March 18, and J. C. Hott is the combustion engineer.

John H. Kirby, Houston, Tex., has been made president of the Texas Steel Co., Fort Worth, Tex. James K. Remsen has been appointed assistant to the president, and treasurer. John A. Coyle, Pittsburgh, Pa., has been appointed metallurgical and operating manager.

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A. Oram Fulton, president Wheelock, Lovejoy & Co., Cambridge, Mass., steel jobbers, has been made a member of the board of directors of the Central Trust Co., Cambridge.

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Henry J. Fuller, chairman of the board and president Rolls-Royce of America, Inc., Springfield, Mass., has been made a director of the First National Bank, Boston.

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Thomas H. Kane, vice-president and works manager Truscon Steel Co., Youngstown, has returned from the Orient, where he went to investigate business conditions.

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Chester P. Clingerman, recently named as superintendent of blast furnaces Mingo and Bellaire works, Carnegie Steel Co., was born in Altoona, Pa., March 12, 1884, and has been actively identified with the iron and steel industry since 1906, when he was graduated with the degree of mechanical engineer from Lehigh University. During his collegiate course he was employed by the H. C. Frick Coke Co. at its Everson shops. In July, 1906, he joined the Carnegie Steel Co. as recorder in the merchant mills at Duquesne works. In April, 1907, he went to the National works, National Tube Co., McKeesport, Pa., as draftsman and later became master mechanic. He returned in November, 1909, to Duquesne, this time in the blast furnace department, where he served as clerk, blower and turn foreman. From March, 1915, until July, 1917, Mr. Clingerman was with the Bethlehem Steel Co. at its Sparrows Point plant, again returning to the Carnegie Steel Co.. as assistant superintendent of blast furnaces at the Bellaire plant, holding this position until his recent promotion.

C. P. CLINGERMAN

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J. C. Cook, assistant treasurer Asa S. Cook Co., manufacturer of wood screw machinery, Hartford, Conn., has been elected president, to succeed his father, the late J. F. Cook. J. C. Cook has been connected with the company for the past ten years. Frank Newton has been elected treasurer, with R. S. Crosby as general manager.

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R. C. Anthony, formerly manager of the metals and chemicals division of Henry W. Peabody & Co., New York, has been appointed resident manager of the New York office at 110 East Forty-second Street by E. J. Lavino & Co., Philadelphia. The Lavino office in New York will sell ferromanganese and other alloys and some metal and chemical products, such as antimony and quicksilver.

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Creed W. Fulton, who has been for the past 17 years with the Goulds Mfg. Co. (now called Goulds Pumps, Inc.), Seneca Falls, N. Y., has resigned his position of works manager, which he had held for the past three years, to become vice-president of the Baker

Cork & Tile Co., 1110 F Street, N. W., Washington. He expects to be associated in the organization, also, of some new industrial enterprises in Maryland, Virginia and North Carolina. For a number of years Mr. Fulton was resident manager in Boston for the Goulds Mfg. Co. He is a graduate of Cornell University, class of 1909.

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George E. Clifford, formerly Cincinnati district sales manager A. M. Byers Co., Pittsburgh, has been placed in charge of the newly combined Cincinnati and Cleveland district sales offices, making his headquarters in Cincinnati. F. E. Boli is to be stationed at Cleveland, and H. F. Bill at Detroit. M. G. Henderson, who has been Cleveland district sales manager, has taken charge of the Chicago district. Frank F. Corby, vice-president in charge of sales of Steel & Tube Co. of America, prior to its absorption by the Youngstown Sheet & Tube Co., joined the sales force of A. M. Byers Co. on July 1. He will be Pacific Coast representative, with headquarters at Los Angeles.

FRANK F. CORBY

—

C. L. Wade has been appointed sales agent and S. P. Buffum assistant manager of wire fence department, Pittsburgh Steel Co., with headquarters in the company's general offices in Pittsburgh. Mr. Wade has been with the company since 1910 and since 1919, after a year in the Army, he has been in the sales department. From 1922 until 1925 he was attached to the Chicago office, as jobbing and manufacturing representative, and then went to the St. Louis office in the same capacity. Mr. Buffum started with the American Steel & Wire Co. in 1909 at Worcester, Mass., later going to its Pittsburgh office and still later to Philadelphia. He joined the Pittsburgh Steel Co. in January, 1919, as a salesman covering the retail trade in Nebraska. He has represented the company among retail trade in the Philadelphia district since 1922.

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H. B. Hinman, who resigned several months ago as superintendent of the cold-strip mill department, Trumbull Steel Co., Warren, Ohio, has been elected president of the Rome Strip Steel Corporation, Rome, N. Y., and has entered upon his new duties.

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Charles H. Houghton, purchasing agent E. & T. Fairbanks Co., St. Johnsbury, Vt., has resigned, to assume charge of the company's extensive timber interests. He has been succeeded by H. W. Furse, formerly located at the company's Toronto, Ont., plant.

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Henry D. Sharpe, Brown & Sharpe Mfg. Co., Providence, has been elected president of the Providence Community Fund, Inc.

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Jerome R. George, vice-president Morgan Construction Co., Worcester, Mass., is spending the summer in England, where, with his family, he is occupying a country place in Surrey.

—

Fred Hughes Moyer, formerly general superintendent, United Alloy Steel Corporation, Canton, Ohio, whose resignation from that position was chronicled in our May 6 issue, has established himself at 527 Renkert Building, Canton, as a consulting mechanical engineer. He is doing special work in plant and process investigation in connection with the steel industry. He is a graduate of Cornell University.

OBITUARY

GRAFTON GREENOUGH, vice-president of the Baldwin Locomotive Works, in charge of domestic sales, died in a hospital in Philadelphia on July 9, after a short illness. He was 57 years old and had been connected with the company for 40 years.

—

JOHN FRANKLIN COOK, president and treasurer Asa S. Cook Co., manufacturer of wood screw machinery, Hartford, died at his home in that city on July 5, of heart trouble. Mr. Cook was born in Hartford on April 11, 1854, a son of the late Asa S. and Mary Jane Cook. He attended the grammar and high schools of that city and was graduated from Wilbraham Academy. He entered the business in 1871 with his father, after whose death he was active head of the firm. He was general manager until 1916, when he was made consulting manager. He had been president about two years, giving personal supervision to the conduct of the business.

—

GEORGE HENRY NORRIS, one of the founders and for many years president of the Wisconsin Iron & Wire Works, Milwaukee, died July 7 at the age of 64 years. Ill health necessitated his retirement from active business a year ago.

—

FREDERICK C. PETERS, manager E. I. du Pont de Nemours & Co., New York office, died on June 30 in the Fifth Avenue Hospital, New York, after an illness dating from early in May. Death was due to a complication of troubles, rather than to any definite illness. He was born Oct. 24, 1873, in Ulster County, New York.

—

J. FRANK STARK, secretary and treasurer Cumberland Steel Co., Cumberland, Md., whose death on July 3 was referred to briefly in THE IRON AGE of last week, started as an office boy in 1894 at the Merwin McKaig Foundry & Machine Works. When the Cumberland Steel Co. was formed in 1896, Mr. Stark entered the employ of that company as stenographer, later becoming assistant to the secretary, then director, and for the past three years was secretary and treasurer. He was 50 years old and heart trouble was the cause of his death.

—

ERNEST G. YEATES, president Yeates Machinery Co., London, Ont., and for several years prominently identified with club and musical activities in that city, died on June 30 at the age of 49 years. Mr. Yeates was born in London. After graduating from the School of Practical Science at Toronto, he joined the Westinghouse Electric & Mfg. Co., East Pittsburgh. He returned to London and joined his father in the London Machine Tool Co., which was subsequently removed to Hamilton after the London plant was destroyed by fire. Mr. Yeates later returned to London, where he established the company of which he was the head at the time of his death.

—

CHARLES A. PSILANDER, mechanical engineer William B. Pollock Co., Youngstown, Ohio, died on July 11, after a brief illness, at the age of 65 years. He belonged to the John Erickson Club, New York, and to the Swedish-Scandinavian Club, Pittsburgh. Mr. Psilander had been connected in engineering capacities with the steel industry in New York, Philadelphia and Easton, Pa., prior to locating in Youngstown.

—

All the employees of the U. T. Hungerford Brass & Copper Co., New York, who have been with the company for five years or more were given six months' pay by the will of Uri T. Hungerford, who died on June 16. In addition, 192 of the employees received specific sums, under the will of their employer.

British Production At Low Level

Few Furnaces in Blast and Pig Iron Advances Rapidly—Active Tin Plate Demand in Britain and United States

(*By Cable*)

LONDON, ENGLAND, July 12.

THE pig iron shortage is acute and Cleveland foundry and forge have advanced 1s. 6d. per ton. Only two furnaces on the Northeast Coast are in blast and production in other areas has virtually ceased. Fuel is scarce and prompt shipments of foreign coal are secured with difficulty. Stocks of hematite iron are still adequate to meet the demand.

Some steel mills are booking forward business, while others are not inclined to accept definite delivery orders. Most mills have sufficient work in hand to last from four to six weeks after resumption of normal operations. June exports of pig iron were 22,168 gross tons, of which the United States took 3,445 tons. The total exports of iron and steel in June were 231,334 tons.

The keen demand for stock tin plate is being maintained with quotations up to 26s. per base box, f.o.b. works port. Some interest is manifested in forward business at 20s. 3d. per base box, f.o.b. works port. Galvanized sheets are firmer, with makers well sold ahead. No. 24 gage corrugated bundles are quoted at £16 10s. f.o.b., for October delivery. A limited supply of merchant parcels is offered for prompt shipment at £17 f.o.b. Black sheets of No. 24 gage are firmer as a result of higher costs, but business is small. There is very little demand for Japanese specifications in the present market.

Continental markets are quiet except for the spasmodic buying by British consumers of semi-finished material. Continental mills are well filled with orders, but some merchant stocks for prompt shipment are still available. A few export inquiries for finished material are reported, but business is difficult of negotiation. On July 1, there were 147 French furnaces in blast.

European Consumers Showing Favor for Open-Hearth Steel

HAMBURG, GERMANY, June 21.—In recent months, whenever a steel mill in Germany suspended or curtailed operations, it has been the Thomas rather than the open-hearth departments that have first ceased operating. The open-hearth capacity of German mills continues to increase while there is a corresponding decrease in the production of Bessemer grades. While the ratio of Thomas steel production to that of the open-hearth was about 100 to 70 in 1913, in 1925 the ratio had been practically reversed to 78 to 100. At the same time Bessemer output declined from 135,000 tons in 1913 to 97,000 tons in 1924 and 22,000 tons in 1925. In April of this year the output of Thomas steel had dwindled so that the ratio to open-hearth stood at about 73 to 100. Although an extra charge of 5 m. per metric ton is made for open-hearth material, the demand for the latter is increasing and the European customers of German mills are showing more inclination to specify open-hearth material than Thomas grade.

German Exporters Find Government Credit Insurance Unsatisfactory

HAMBURG, GERMANY, June 21.—The methods employed by the Government in handling the new export credit insurance, designed to increase export trade, is resulting in numerous complaints by exporters. As a result of the delay involved and the fees for credit information many exporters seem to prefer to continue with the large British companies. Many Hamburg and Bremen exporters are reported to have practically boycotted the Government insurance.

One of the principal complaints is that it requires from three to four weeks to obtain a reply to an inquiry on the credit of a foreign company, during which time whatever business was in prospect has probably been placed elsewhere. Another objection is that each inquiry must be accompanied by a 12 m. fee, and as the average of acceptances by the Government is about one risk out of three or four, the actual cost to the exporter of his government insurance is 36 to 48 m., which together with the 2 per cent premium means a cost of 4 to 5 per cent on an order totaling about $500.

A business paper which investigated the situation claims that the government insurance department in one instance received more than 100 inquiries, each

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, del'd	£0	18	6s.				$4.50		
Bilbao Rubio ore†	1	1		to £1	1	4s.	5.10	to	$5.16
Cleveland No. 1 fdy.	4	8	and	4	8	6*	21.38	and	21.50*
Cleveland No. 3 fdy.	4	5	6 and	4	6	*	20.77	and	20.90*
Cleveland No. 4 fdy.	4	4	6 and	4	5	*	20.53	and	20.65*
Cleveland No. 4 forge	4	4	and	4	4	6*	20.41	and	20.53*
Cleveland basic (nom.)	3	15	and	3	15	6*	18.23	and	18.35*
East Coast mixed	3	19	and	4	0	*	19.19	and	19.44*
East Coast hematite	3	16	to	3	16	6	18.46	to	18.58
Ferromanganese	15	0					72.90		
*Ferromanganese	14	0					68.04		
Rails, 60 lb. and up	6	15	to	7	5		32.80	to	35.24
Billets	6	10	to	8	0		31.59	to	38.88
Sheet and tin plate bars, Welsh	6	5					30.38		
Tin plates, base box	1	0	4 to	1	6		4.92	to	6.34
Black sheets, Japanese specifications	13	10	to	14	0		65.60	to	68.04
							C. per Lb.		
Ship plates	7	5	to	7	15		1.57	to	1.68
Boiler plates	9	5	to	11	0		2.00	to	2.39
Tees	7	10	to	8	0		1.62	to	1.73
Channels	6	15	to	7	5		1.46	to	1.57
Beams	6	10	to	7	0		1.41	to	1.51
Round bars, ¾ to 3 in.	7	12	6 to	8	2	6	1.65	to	1.77
Steel hoops	10	10	and	11	0	*	2.28	and	2.39*
Black sheets, 24 gage	11	0	to	11	5		2.39	to	2.44
Galv. sheets, 24 gage	16	10					3.58		
Cold rolled steel strip, 20 gage	18	0					3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron: (a)									
Belgium	£3	6s.	to	£3	7s.		$16.03	to	$16.28
France	3	6	to	3	7		16.03	to	16.28
Luxemburg	3	6	to	3	7		16.03	to	16.28
Basic pig iron: (a)									
Belgium	2	16	to	2	17		13.60	to	13.85
France	2	16	to	2	17		13.60	to	13.85
Luxemburg	2	16	to	2	17		13.60	to	13.85
Coke	0	18					4.37		
Billets:									
Belgium	4	7	to	4	9		21.14	to	21.63
France	4	7	to	4	9		21.14	to	21.63
Merchant bars:							C. per Lb.		
Belgium	4	13	to	4	15		1.03	to	1.04
Luxemburg	4	13	to	4	15		1.03	to	1.04
France	4	13	to	4	15		1.03	to	1.04
Joists (beams):									
Belgium	4	12	to	4	14		1.01	to	1.03
Luxemburg	4	12	to	4	14		1.01	to	1.03
France	4	12	to	4	14		1.01	to	1.03
Angles:									
Belgium	5	2	to	5	4		1.12	to	1.15
⅛-in. plates:									
Belgium	5	7½	to	5	10		1.19	to	1.21
Germany	5	7½	to	5	10		1.19	to	1.21
¼-in. ship plates:									
Belgium	5	1	to	5	3		1.11	to	1.13
Luxemburg	5	1	to	5	3		1.11	to	1.13
Sheets, heavy:									
Belgium	6	3	to	6	4		1.35	to	1.37
Germany	6	3	to	6	4		1.35	to	1.37

(a) Nominal.

accompanied by the usual 12 m. fee, all relating to a single company in Buenos Aires, Argentina. Its report being unsatisfactory, the department refused to insure any drafts drawn on the importer under inquiry. Exporters point out that, where the government in this instance made 1200 m. by reporting an unsatisfactory rating to the 100 or more inquiries on this firm, the British insurance companies make no charge for credit information and act promptly.

Strikes Cause Decline in British Steel Exports and Imports

Due to the strikes in Great Britain in May, iron and steel exports were considerably less than in other months this year. The total was 277,849 gross tons compared with 322,832 tons in April. Deducting scrap (34,023 tons), the May total was 243,822 tons, or 21.5 per cent less than the corresponding average for 1925 of 310,900 tons per month. The May data, compared with the first quarter and with other years, are as follows:

Exports of Leading British Steel Products in Thousands of Gross Tons Per Month

	May, 1926	First Quarter, 1926	1925	1913
Pig iron and ferroalloys..	12.9	49.2	46.6	93.7
Iron bars, rods and shapes	3.0	2.9	3.1	11.8
Steel bars, rods and shapes	18.7	22.7	19.8	20.9
Hoops and strips.....	4.6	4.8	5.1	3.8
Plates	8.8	9.9	9.9	11.2
Black plates and sheets..	24.4	28.2	19.5	11.7
Galvanized sheets	60.7	71.6	59.4	63.5
Tin plates and sheets....	33.8	47.2	42.6	41.2
Rails	29.7	24.7	17.3	42.2
Cast tubes, pipes and fittings	6.1	9.9	7.8	19.6
Wrought tubes, pipes and fittings	16.7	21.3	16.0	13.7
Wire and manufactures..	9.9	9.8	9.8	9.6
Total for all exports (except scrap)	243.8	360.8	310.9	414.1

Despite the strike, the volume was fairly large. The exports came evidently from stocks, as output was negligible.

Imports were at a lower rate than exports in May as compared with April. At 185,844 tons (166,636 tons aside from scrap), the imports compare with 298,649 tons (261,787 tons aside from scrap) in April, and with a monthly average in 1925 of 234,900 tons (226,750 tons aside from scrap).

German Mills Making "American Style" Wire Cloth—International Syndicate

HAMBURG, GERMANY, June 21.—German manufacturers have recently entered still another field with the production of products to United States specifications. Makers of wire cloth have, in the past, made the usual soft mosquito screen and other painted wire cloth in the various sizes of international numbers, such as 23-I, 23-III, 23-V, 36-I, 36-III, etc. This type of netting is sold in large quantities to India, Africa and China. The extra or "diamond" hard wire cloth produced in the United States, has not hitherto been manufactured in Germany. Recently production of this type, made to United States specifications, was begun and large export orders have been booked. The netting is offered to consumers as "American style" wire netting and the best known brands at present are "Diamond" and "Bear." Prices are understood to be about 5 per cent under the best offers made by American manufacturers.

On June 22, an agreement was concluded between the German Wire Netting Association and British, French and Belgian manufacturers of wire netting, for the purpose of price regulation and general selling practice. The agreement establishes the following discounts from the British standard export list: Lots of 1000 reels or more, 81 per cent off list; 500 reels or more, 80½ per cent off; less than 500 reels, 80 per cent off list.: For small reels of 25 yd. or 25 meters, there is an extra of 3d. per reel. There are many mills in Germany, Austria and Czechoslovakia not included in this agreement so that complete control of the situation is not expected. Negotiations are under way with most of these outside mills, however, and should they join, as seems possible, a further reduction of discounts by about 1 per cent is expected.

British Strike Diverts Japanese Sheet Orders to Germany

HAMBURG, GERMANY, July 1.—The Gelsenkirchen Bergwerks, reported several months ago to have entered into competition with British and American mills for light gage sheet business in Japan, is producing these open-hearth, Nos. 30 and 31 gage, sheets in a recently acquired sheet mill at Dortmund. It is expected that these sheets will continue to sell at slightly lower prices, c.i.f. Japan, than the British or American products, and as a result of the British strike a number of orders are reported to have been placed by Japanese consumers with the Gelsenkirchen works for shipment in four to five weeks. Light gage open-hearth black sheets are also manufactured by the Providence works in Belgium but Japanese buyers seem to prefer the German product. Recent sales of the Gelsenkirchen sheets have been at £16 10s per metric ton (about $80.19), c.i.f. Japan. Should this business continue in the present volume, an increase of production to 2500 tons a month is intended.

TIN PLATE INQUIRY ACTIVE

European Packers Find Deliveries too Extended But Buy Small Lots—Foreign Bars Offered Here

NEW YORK, July 13.—Inquiries for tin plate from European consumers continue to accumulate as a result of the British strike, but the volume of orders is still small. Recent inquiries that have been received by American mills were from consumers in Norway, Denmark, Spain and Portugal. The deliveries quoted by mills in the United States are apparently the principal obstacle to the award of much of this business, as the European is unwilling to wait for shipments quoted from early September to late October. A few lots, however, have been placed here representing only a small part of the customer's requirements. In one instance the original inquiry was for about 1000 base boxes, but when October delivery was quoted only 300 boxes were purchased. A few small orders have also been appearing from Japan, one for about 1500 boxes for a bottle cap manufacturer being placed last week. There are also several other small lot inquiries in the market from Japanese sources. Otherwise the Japanese market is quiet. The export market on tin plate continues firm at about the same price level as for several months past, ranging from a Pittsburgh base of about $4.75 to as high as $5 per box.

Importers in New York are quoting on several contracts for reinforcing bars, which have been in the market for some time. Efforts are being made to submit quotations on the 7500 tons of twisted square bars for the West Philadelphia station of the Pennsylvania Railroad, being constructed by the O'Neil Co., Philadelphia. The 3000 tons of bars for Buenaventura, Colombia, are still open, as well as several smaller contracts in the United States involving bars. Importers are also quoting Stone & Webster, Inc., on the bars for the Conowingo power project. Foreign bar prices are weak and open-hearth reinforcing material is quotable today at 2.70 to 2.80c. per lb., c.i.f. duty paid, the price depending upon the tonnage involved.

Manganese exports from Chiaturi for the eight months between Oct. 1 last and June 1, under operation of the Georgian Manganese Co., the Harriman concessionary, were 364,000 metric tons, according to a bulletin of the Russian Information Bureau. This breaks post-war records for the Chiaturi fields. The entire output of the Chiaturi fields for the preceding Soviet fiscal year, ended Sept. 30 last, was 340,000 tons.

NEW TRADE PUBLICATIONS

Production Tools.—Scully-Jones & Co., 2012 West Thirteenth Street, Chicago. Booklet of 44 pages describing the "Wear-Ever" line of production tools, including chucks, milling cutters, extension sockets, sleeves, spacing collars, special tool holders and collets.

Cranes.—Orton Crane & Shovel Co., Transportation Building, Chicago. Bulletin No. 41, 24 pages, describing the company's two models of convertible, flexible-tread cranes, designed for handling materials, excavating and various sorts of constructional work. The cranes have lifting capacities ranging from 2600 lb. at a 60 ft. radius to 24,000 lb. at a 12 ft. radius.

Electrical Appliances.—General Electric Co., Schenectady, N. Y. Bulletin GEA-372, describing the construction and operation of the company's explosion chambers for high-voltage oil circuit breakers. Bulletin GEA-19B, giving description and specifications of A-C inclosed magnetic switches. Bulletin GEA-416, describing the company's automatic starting compensators for squirrel-cage induction motors.

Automatic Pumping.—Barrett, Haentjens & Co., Hazleton, Pa. Bulletin No. 400a, reprinted from a paper delivered before the American Institute of Electrical Engineers by Otto Haentjens and W. A. Cather on the subject of automatic pumping treated from a purely technical standpoint. Numerous diagrams are presented and several new methods of making centrifugal pumps automatic are described.

Polyphase Motors.—Century Electric Co., 1806 Pine Street, St. Louis. Leaflet briefly describing the construction of the company's squirrel-cage, polyphase motor.

Portable Elevators.—Revolvator Co., 336-352 Garfield Avenue, Jersey City. Bulletin No. 90F, describing what are known as portable elevators for stationary uses, with lifting capacities of from 500 to 5000 lb., making use of the company's Revolvator for piling, stacking or tiering material.

Heating Appliances.—Protane Corporation, Erie, Pa. Illustrated catalog of 32 pages, describing the company's ranges, hotplates, stoves and other heating appliances equipped for the burning of protane bottled gas. This gas, taken from oil wells, in low pressure, is placed in small steel containers ready for use at all times in the company's appliances.

Gas Meters.—Cutler-Hammer Mfg. Co., Milwaukee, Wis. Publication T-7, briefly describing the Thomas meters with capacities of 25,000 to 200,000 cu. ft. per hour.

New and Used Equipment.—Technical Economist Corporation, 40 Rector Street, New York. "Stock clearing sale" booklet, 24 pages, listing chemical, pulp and paper making, sugar mill and other equipment. Several complete plants are offered. Line sketches of evaporators, stills, etc., giving over-all dimensions, are included.

Calendar.—Wagner Electric Co., St. Louis. Attractive poster 13 x 19 in., with calendars for current, past and month to come. The current calendar is 4¼ x 6¼ in., brown on white; and the two other calendars the same size but white on brown.

Vacuum Pumps.—Connersville Blower Co., Connersville, Ind. Bulletin 20B descriptive of the company's Cycloidal vacuum pumps with two-lobed impellers especially designed for paper mill service. They are suitable for processes requiring normal vacuums up to 15 in. with a maximum of 20 in. mercury.

Screw Machines.—Brown & Sharpe Mfg. Co., Providence, R. I. Leaflet containing brief descriptions of the company's plain, wire feed and automatic screw machines adapted to a broad range of work.

Insulating Materials.—Celite Products Co., Los Angeles, Cal. Bulletin No. 115 describing the use and properties of the company's Sil-O-Cel C-3, semi-refractory insulating product to be used alone or mixed with portland cement to form Sil-O-Cel C-3 concrete. "The Logic of Insulation," a 16-page booklet, with a number of descriptive illustrations, explaining the reasons for and methods of heat insulation and its advantages with brief mention of the company's different materials.

Pumping Machinery.—Dean Hill Pump Co., Anderson, Ind. Bulletin 602, describing with illustrations and diagrams the construction of the company's multi-stage centrifugal pumps with capacities up to 30,000 gal. per min.

Induction Motors.—General Electric Co., Schenectady, N. Y. Bulletin GEA-405, giving general characteristics and ratings of the company's constant speed induction motors of the squirrel-cage type for elevator service. Bulletin GEA-435, providing similar data about a multi-speed induction motor for the same use.

Boring Machinery.—Ingersoll Milling Machine Co., Rockford, Ill. Folder giving brief description of the company's product with illustrations of a few particular types.

Chain Block.—Herbert Morris, Inc., Buffalo. Folder covering triple-gear blocks designed for heavy service. To meet international trade requirements, these hoists are rated on gross tons instead of net tons.

Power Factor Correction.—Wagner Electric Corporation, St. Louis. 24-page pamphlet, detailing the experience of the American Gas & Electric Co. in correction of power factor and analyzing an electric tariff rate in which power factor is involved.

Speed-Reducing Gears and Light Transmission Machinery.—Winfield H. Smith, Springfield, N. Y. Loose-leaf, pocket-size catalog of 36 pages, illustrating speed-reducing gears, hangers, pillow blocks, pulleys, arbor presses, couplings and special power attachments.

FOREMEN'S Clubs are assuming an important place in American industry and in certain centers now have large and active memberships. The photograph was taken at a recent banquet of the Foremen's Club of Canton, Ohio, which has 250 members.

Table I—Furnace Iron Production

Month 1924	Average Daily Production, Tons					Coke, Lb. per Ton				
	Group I		Group II			Group I		Group II		
	No. 1	No. 2	"A"	"B"	"C"	No. 1	No. 2	"A"	"B"	"C"
July	Out of	445	274	352	Out	Out of	2,274	2,290	2,267	.....
August	blast	481	287	343	of	blast	2,088	2,121	2,150	.....
September	427	505	288	351	blast	2,215	1,946	2,181	2,209	.....
October	483	472	Out	326	275	2,126	2,051	.....	2,346	2,514
November	437	496	of	306	278	2,196	1,868	.....	2,418	2,494
December	480	523	blast	328	308	1,935	1,802	.....	2,312	2,432
Average—July to December	456	487	283	339	287	2,110	1,990	2,199	2,260	2,478
1925										
January	425	537	217	267	289	2,248	1,916	2,798	2,619	2,408
February	447	577	313	289	339	2,244	1,864	2,088	2,604	2,192
March	495	574	346	363	338	2,000	1,869	1,984	2,116	2,256
April	495	562	367	376	325	2,065	1,810	1,871	2,064	2,120
May	503	562	376	326	Out of Blast	2,051	1,754	1,981	2,281	.....
June	495	580	377	308		2,010	1,727	1,951	2,379	.....
July	489	474	357	364		2,141	2,156	1,939	2,106	.....
August	.....	.....	371	347		.....	.....	1,878	1,975	.....
September	.....	.....	360	313		.....	.....	1,921	1,933	.....
October	.....	.....	358	354		.....	.....	1,977	1,921	.....
November	.....	.....	350	372		.....	.....	2,018	1,882	.....
Average—February to November	.....	.....	357	341	334	.....	.....	1,967	2,110	2,190
Average—January to July	479	552	.....	.....	.....	2,105	1,860	.....	.....	.....
Difference	+ 23	+ 65	+ 74	+ 2	+ 47	.....	— 130	— 232	— 150	— 288

Serving Two Plants with Coke

(*Continued from page* 145)

unsatisfactory. The operating manager had insisted for some time that our coke was too light and not dense enough. I am frank to say that I did not agree with him. Something had to be done.

We made some experiments with coal mixtures, to determine what combination of available coals would produce a coke having the greatest density. This was really gaged by the average weight of a unit volume, our standard coke racks. The coal mixture which seemed to give the greatest weight per car checked pretty well with one which had been used previously with good results on Group No. 2 furnaces. From the standpoint of analysis or appearance, this dense coke did not seem to be so good as that which we were using.

We decided to try making two kinds of coke. Using available coals we made the dense coke for Group No. 2 and made the change in coal mixture for Group No. 1 as small as possible.

Our coal handling plant began in the morning running up to the "big" bin the mixture for the Group No. 1 furnaces—at this time the ovens were charging this mixture. At about 10.30 a. m. the coal handling crew would begin filling the "small" bin with the mixture for Group No. 2. The ovens would be notified and they would begin charging from the "small" bin. To correct for difference in shrinkage of the two charges, the gage on one hopper of each larry was raised or lowered as the change was made from one bin to another. The coal handling crew ran into the "small" bin until it was full and then changed their mixers over to the setting for the "big" bin. The ovens would continue charging from the "small" bin until it was completely empty, or until enough ovens had been charged to take care of Group No. 2 coke consumption. The pusher sheets and the log books were marked with the first and last ovens charged with mix for Group No. 2.

After the last oven from Group No. 1 had been pushed the coke wharf was cleaned off and any part load of coke under the loading booms was thrown out. Coke for Group No. 2 could be loaded and cars

Table II—Coal and Coke

1924 Month	Coal Mixture, Per Cent							Coal Analysis, Per Cent			
	Poco.	Pittsburgh		Connellsville		Elkhorn		Water	Volatiles	Fixed Carbon	Ash
July	25	Banning & Wilson	27½	S. Union	27½	Consol.	20	3.55	30.98	61.87	7.15
Aug.	25	Banning & Wilson	35			Consol. and Hanna	40	3.73	32.18	61.23	6.59
Sept.	25	Wash.	15	S. Union	20	Consol. and Hanna	40	3.89	30.92	62.58	6.50
Oct.	25	Wash.	17½	S. Union	22½	Consol. and Hanna	35	3.05	31.16	62.17	6.67
Nov.	25	Wash.	25	S. Union	30	Consol.	20	3.07	30.41	62.86	6.73
Dec.	25			S. Union	45	Consol.	30	3.51	30.75	62.44	6.81
				Group No. 1—Furnaces							
Group I—1925											
Jan.	22½	Wash.	20	S. Union	35	Consol.	25	4.23	30.81	62.64	6.55
Feb.	20	Banning	20	S. Union	35	Consol.	25	4.05	30.06	63.16	6.78
March	20	Banning	20	S. Union	35	Consol.	25	3.84	30.40	62.80	6.80
April	20	Banning	20	S. Union	35	Consol.	25	3.90	30.10	63.24	6.66
May	20	Banning	20	S. Union	35	Consol.	25	3.80	30.51	62.94	6.55
June	20	Wash.	20	S. Union	35	Consol.	25	3.27	30.97	62.41	6.62
July	20	Wash.	17½	S. Union	37½	Consol.	25	3.34	30.63	63.00	6.37
				Group No. 2—Furnaces							
Group II—1925											
Jan.	20	Wash.	80					3.62	31.01	61.07	7.92
Feb.	20	Banning	80					3.17	31.06	61.10	7.84
March	20	Banning	80					3.32	30.57	61.55	7.88
April	20	Banning	80					2.76	31.23	60.92	7.85
May	20	Banning	80					2.95	31.45	60.82	7.73
June	20	Wash.	80					2.56	31.41	60.86	7.73
July	22½	Wash.	77½					3.15	31.41	61.23	7.36

Coke Consumption, Etc.

Average Silicon, Per Cent					Kind of Iron					Wind Blown, Cu. Ft. per Min.				
Group I		Group II			Group I		Group II			Group I		Group II		
No. 1	No. 2	"A"	"B"	"C"	No. 1	No. 2	"A"	"B"	"C"	No. 1	No. 2	"A"	"B"	"C"
.....	2.85 1.32	2.08	2.94	.....	.....	Fd. Bc.	Fd.	Fd.	.....	.....	.....	32,172	35,737	.....
.....	1.10	2.36	1.59	.....	.....	Bc.	Fd.	Mal.	.....	.....	.....	30,913	33,381	.....
2.28 1.19	1.14	2.41	1.65	.....	Fd. Bc.	Bc.	Fd.	Mal.	.....	.....	.....	31,328	33,272	.....
2.66	1.06	.....	1.65	2.41	Fd.	Bc.	Fd.	Mal.	Fd.	.....	.....	.....	33,830	29,519
2.33	1.22	.....	2.17	2.03	Fd.	Bc.	Fd.	Fd. & Mal.	.....	.....	.....	.....	33,400	31,212
1.13	1.27	.....	2.65	1.86	Bc.	Bc.	.....	Fd.	Mal.	.....	.....	.....	32,190	29,257
1.96	1.31	2.28	2.11	2.10										
2.65	1.26	3.24	1.82	1.65	Fd.	Bc.	Fd.	Fd.	Mal.	.....	.....	24,237	29,394	26,817
2.35	1.17	2.37	2.61	1.84	Fd.	Bc.	Fd.	Fd.	Mal.	.....	.....	29,171	33,242	33,455
2.19 1.14	1.07	2.26	2.82	1.71	Bc.	Bc.	Fd.	Fd.	Mal.	.....	.....	30,907	32,734	34,619
1.79 1.15	1.17	2.28	2.64	1.41	Mal. & Fd.	Bc.	Fd.	Fd.	Mal.	.....	.....	32,920	35,842	36,083
2.51	1.26	2.37	2.48	.....	Mal. & Fd.	Bc.	Fd.	Fd. & Mal.	.....	.....	.....	32,772	33,421	.....
1.95–1.64	1.28	2.44	1.65	.....	Bc.	Bc.	Fd.	Fd.	.....	.....	.....	32,985	34,744	.....
2.66	1.13	2.44	1.89	.....	Fd.	Bc.	Fd.	Fd.	.....	.....	.....	32,971	35,291	.....
.....	.....	2.56	1.62	.....	.....	.....	Fd.	Fd.	.....	.....	.....	32,955	32,672	.....
.....	.....	2.76	1.65	.....	.....	.....	Fd.	Fd.	.....	.....	.....	32,493	28,239	.....
.....	.....	2.60	2.01	.....	.....	.....	Fd.	Fd.	.....	.....	.....	32,851	29,582	.....
.....	.....	2.86	2.31	.....	.....	.....	Fd.	Fd.	.....	.....	.....	.....	.....	.....
.....	.....	2.48	2.16	1.65										
2.15	1.19	.....	.....	.....										
+ 0.19	— 0.12	+ 0.20	+ 0.05	— 0.45										

carded accordingly until all ovens charged for Group No. 2 had been pushed and the wharf cleaned of this coke.

About the time this trial began, "B" furnace of Group No. 2 was blown out and a new stack line put in. "C" furnace was blown down and examined and found to be all right. "A" furnace was being blown in new. The results seemed to warrant the continuation of the test, even though the appearance of the coke for Group No. 2 was, in our opinion, not so good as the original. The accompanying tables show the operating results on each group of furnaces for several months after the change, also the analysis of coal and coke and the coal mixture charged.

Better Production and Performance

Group No. 1 continued doing good work. No. 1 furnace had a daily average of 23 tons more iron on about the same coke consumption. No. 2 furnace produced 65 tons more iron per day using 130 lb. of coke less per ton.

Group No. 2 began a very satisfactory operating period. "A" furnace made 74 tons more iron per day on 232 lb. less coke per ton. "B" furnace used 150 lb. per ton less coke on about the same daily tonnage. This furnace, which was supposed to be ready for blowing out early in 1925, was still going well in December, 1925. "C" furnace was blown out the last of April, because its product was not required, but until that time it had averaged 47 tons more iron per day on 288 lb. less coke per ton. In view of the fact that the furnaces in Group No. 2 are small the improvement in operating results are important and in this case made up the difference between an operating loss and a profit.

Other things being equal, it is not desirable to make two different kinds of coke in a single coke plant. The possibilities of error in coal mixture, etc., are doubled and we felt obliged to use extra supervision for a time, to make sure that no errors might occur. The results obtained seemed more than enough to warrant the extra trouble and the practice is being continued.

It may be that other conditions not recorded here affected our results but, personally, I feel that, in view

Data for All Furnaces

Coke Analysis, Per Cent								Screen Test			Shatter Test				
Sulphur	Screen Test Wet	Screen Test Dry	Wt. per Cu. Ft.	Water	Volatiles	Fixed Carbon	Ash	Sulphur	On 3-In.	On 2-In.	On 1-In.	Through 1-In.	Through 2-In.	Apparent Specific Gravity	True Specific Gravity	Porosity	Weight per Car, Lb.
0.97	80.0	...	43.8	2.49	2.16	88.38	9.46	0.79	24.5	51.0	21.9	2.6	23.4	0.99	1.87	47.4	73,900
0.93	78.8	...	43.7	3.17	2.31	88.61	9.08	0.77	24.7	49.2	23.5	2.6	21.5	0.95	1.87	49.4	71,800
0.87	81.9	...	44.0	3.45	2.19	88.61	9.20	0.72	22.3	52.4	22.5	2.8	22.0	0.96	1.88	49.0	72,800
0.89	83.5	84.8	45.1	3.20	2.05	88.99	8.96	0.71	20.7	56.7	19.9	2.7	23.3	0.96	1.87	48.8	73,700
0.92	84.2	85.1	45.4	3.46	1.79	89.23	8.98	0.74	17.2	61.3	19.4	2.1	22.2	0.90	1.89	52.1	74,400
0.92	81.6	82.7	45.7	4.09	1.73	89.01	9.26	0.76	13.6	66.5	18.1	1.8	23.2	0.91	1.89	52.0	75,900
					2.04	88.64	9.16	0.75	76.7				22.6	0.945	1.87	49.8	73,750
Group No. 1—Furnaces																	
0.89	80.3	81.7	46.0	3.33	1.76	89.36	8.88	0.75	20.9	57.8	19.7	1.6	26.6	0.90	1.90	52.7	76,500
0.86	80.3	81.3	46.8	3.25	1.87	88.51	9.62	0.72	20.1	58.6	19.3	2.0	28.4	0.90	1.92	52.8	77,900
0.86	80.2	81.0	44.4	3.08	1.81	88.80	9.39	0.71	14.2	64.2	20.2	1.4	25.5	0.91	1.91	52.3	77,300
0.83	80.2	80.8	45.0	2.37	1.74	88.75	9.51	0.72	10.7	65.7	22.3	1.3	25.0	0.92	1.92	52.0	76,700
0.85	80.3	81.2	44.4	2.85	1.90	88.71	9.39	0.74	9.2	66.0	23.4	1.4	26.2	0.93	1.92	51.4	76,700
0.94	80.3	80.8	44.6	2.39	1.70	89.26	9.04	0.79	9.8	66.3	22.4	1.5	26.9	0.93	1.91	51.1	77,400
0.92	80.3	80.8	44.4	2.21	1.67	89.45	8.88	0.81	11.8	63.4	23.4	1.4	28.4	0.94	1.93	51.0	76,900
					1.79	88.98	9.24	0.75	76.9				26.7	0.92	1.92	51.9	77,060
Group No. 2—Furnaces																	
1.04	79.5	81.0	46.2	2.09	1.82	87.44	10.74	0.91	17.9	58.4	22.0	1.7	28.7	0.96	1.91	49.5	82,800
0.94	79.4	80.4	46.2	3.25	1.87	87.00	11.00	0.82	19.1	58.4	21.1	1.4	27.5	0.95	1.92	50.2	82,800
0.97	79.2	80.0	46.6	2.63	1.87	86.95	11.18	0.80	13.8	63.9	20.7	1.6	24.9	0.95	1.92	50.2	82,700
0.92	79.0	79.5	46.6	1.99	1.84	86.99	11.17	0.82	13.2	64.8	21.3	0.7	24.5	0.95	1.93	50.4	82,000
0.96	78.2	78.9	45.6	2.83	1.94	87.57	10.49	0.80	8.7	65.8	24.0	1.5	28.3	0.94	1.93	50.9	81,600
1.28	78.5	79.0	45.4	2.04	1.73	87.61	10.66	1.03	9.8	65.1	23.6	1.5	26.1	0.96	1.93	49.9	84,200
1.15	78.4	79.2	45.4	2.17	1.63	88.05	10.32	0.93	8.9	65.8	23.1	1.0	27.6	0.97	1.95	49.7	84,200
					1.81	87.37	10.79	0.87	76.2				26.8	0.95	1.92	50.1	82,900

of them, we are warranted in looking further into this subject. Whether or not it will be advisable to make a general practice of producing coke particularly suited to the needs of individual furnaces or groups, I do not know. In this particular instance, we were justified in deciding that the two groups of furnaces could be served best by making a special coke for each. I also believe that, when a single coke plant serves more than one group of blast furnaces, experiments along the lines outlined might show that improved furnace results would make the extra trouble and expense at the coke plant very much worth while.

Heat Treating Castings Electrically*

German Impressions of the Rapid Expansion in American Steel Foundries—Costs and Advantages Compared with German

THE United States is today in the lead in the application of the electric arc furnace to the melting of iron and steel as well as of non-ferrous metals and alloys, although it was behind Europe in this respect before the war. The electrical resistance furnace has also found wide use in America for the most varied kinds of heat treatment, and these furnaces are quite generally used in American iron and steel foundries for the annealing of castings, for the heat treatment of castings has received increased attention in recent years.

Expansion in Heat Treating Castings

Not only do alloy castings of manganese steel, nickel-chromium steel, etc., receive a heat treatment in American steel foundries, but also most of the ordinary castings, in order to improve their physical characteristics. Rule-of-thumb methods have been abandoned, and American heat-treating practice is now founded on an exact scientific basis. The great American automobile industry, which has a very keen interest in obtaining castings of the best mechanical properties for the least weight, has done pioneer work in the heat treatment of automobile parts.

Formerly heat treatment was carried out exclusively in coal, gas or oil-fired furnaces, but today electrically heated furnaces are being increasingly used. As the arc furnace is not suitable as a heating furnace because of the high and uneven temperatures produced, at first muffle furnaces with metallic resistance heating elements were used. Then the tendency veered over to electric furnaces with graphite plate or granular carbon resistances, which were packed in carborundum housings.

On account of the difficulties experienced with this latter type in reaching the desired temperatures without overloading the power plant, there has been a trend in the past four or five years back to electric furnaces with metallic resistances. At present, however, heavy strips of an alloy of 80 per cent nickel and 20 per cent chromium (nichrome) are used, which are not muffled but are arranged bare. The author showed stereopticon views of furnaces of this type manufactured by George S. Hagan Co., Pittsburgh. The operation of these furnaces is very simple, temperature regulation being automatically provided for by two thermoelements.

Costs of Heat Treatment

At a current price of 2.7 pfg. (0.675c.) per kwhr., the total cost for heat treatment according to American practice amounted to 1.8 pfg. per kg. (0.2c. per lb.) of castings. The costs in Germany should not exceed this figure, although current costs, with a few exceptions (hydroelectric or lignite mine-mouth power plants) are higher than 2.7 pfg. per kwhr., but capital charges and wages are lower than in America, so that approximately the same heat-treating costs result. The author concludes that electric heat treatment can be economically carried out in German foundries wherever the price of current is not too high.

Advantages of Electric Treatment

The advantages of electric heat treatment as seen by him are:

1. Uniform heat distribution and thorough penetration of the heat into the castings without overheating the corners and projecting parts.
2. Accurate, automatic temperature control.
3. The heating chamber is free from combustion gases, so that no oxidation occurs and no corrosion of the casting.
4. Heating results from uniform radiation as opposed to high-speed gas currents and sheets of flame in the case of gas furnaces.
5. Absolutely exact maintenance of the correct ratio of heat production to heat absorption, with a resultant maximum thermal efficiency.
6. Operating conditions with such furnaces are very pleasant as they give off no heat by radiation, no combustion gases and produce no smoke in the shop.
7. Production becomes remarkably uniform as a result of the heat treatment, which can be accurately reproduced whenever required.
8. Defective charges, due to incorrect annealing, can be avoided completely, with resultant greater economy and savings in the total production costs, while the product itself is superior.
9. The electric annealing furnace can be easily adjusted to meet operations preceding it or following it.

In reply to the question as to whether other protective gases than hydrogen and carbon monoxide were being used in the United States, the author stated that generator gas or carbon monoxide were commonly employed, and that he had not heard of the use of natural gas. The tendency was to do away with protective gases and to make the annealing retort gas tight.

Discussion

Doctor Goldbeck pointed out that Siemens-Schuckert, in collaboration with Haeraeus, had designed a German steel annealing electric furnace which gave good results. Muffle furnaces are also used successfully, requiring only 200 kwhr. per ton. One German company in particular is also operating electric annealing furnaces successfully.

Electric Cast Iron

A film was shown of a 6-ton Heroult melting furnace, used at the Zwickauer Maschinenfabrik, operating at a transformer load of 1200 kwhr. Graphite electrodes of German make were used, and found to be as good as American graphite electrodes. Graphite consumption was 5½ lb. of burned electrode per ton of material. The life of the lining was 1 year for the bottom, ½ year for the side walls and 60 charges for the arched top. As a result of automatic control, the furnace operates practically without any current fluctuations. At first cold charges were used but, owing to the high cost of power (2.7c. per kwhr.), the use of cold charges was abandoned. With lower power costs the electric furnace can compete with the cupola furnace in economy.

*From a paper presented by H. Nathusius at a special meeting of the electric furnace section of the Association of German Foundrymen in Berlin, Jan. 16. This abstract is translated by Albert P. Sachs, technical director Universal Trade Press Syndicate, New York.

Machinery Markets and News of the Works

LARGE MOTOR PLANT LIST

Nordyke & Marmon Co., Indianapolis, Inquires for 120 Tools

Chicago & North Western Railroad in the Market for 29 Machines—Tool Buying in Encouraging Volume

THE Nordyke & Marmon Co., Indianapolis, has issued an inquiry for about 120 production machine tools to be used in the manufacture of a light eight-cylinder automobile to be an addition to its present line of Marmon cars. Another large inquiry before the trade of the Central West is from the Chicago & North Western Railroad, which lists 29 machines on which it asks for prices.

Machine tool business generally, although showing some recession not surprising at this time of year, is holding up in encouraging volume. Most of the orders are for single machines, but some buying in fairly large lots continues. At Chicago liberal orders have been placed by the Illinois Central Railroad and by the International Harvester Co. for its Rock Island, Ill., tractor works.

The Delco Light Co., Dayton, Ohio, is expected to come into the market shortly for presses, shears and other equipment for a new plant. The Glenn L. Martin Co., Cleveland, which recently took a large order for airplanes for the Government, is inquiring for machine tools for a plant extension.

New York

NEW YORK, July 13.

MACHINE tool business has tapered off slightly since the first of this month, but is still in fairly good volume for this time of year. A favorable indication is that inquiries have increased in number. Orders of the week include the following: Two 60-in. punches and shears to the Illinois Central Railroad; a 26-in. shaper to a company at Seattle, Wash.; an automatic screw machine to a Los Angeles manufacturer; a side-head boring mill to a manufacturer at Providence, R. I.; a jig boring machine to an automobile plant in Milwaukee; also jig boring machines to companies at Phillipsburg, N. J., and Moline, Ill.; two bench millers to a company in Los Angeles; one bench miller to a Syracuse, N. Y., company; a 20-in. geared-head lathe to an automobile body plant in Buffalo; a 13-in. geared-head lathe to a Lansing, Mich., manufacturer; an automatic centering machine and an automatic lathe to a Detroit automobile company; two 6-ft. deep-hole drilling machines to a Denver, Colo., company; a vertical shaper to a Bridgeport, Conn., machine tool manufacturer; three automatic milling machines, a profiler and a bench miller to a Chicago machinery manufacturer; an automatic lathe to a Fort Wayne, Ind., company.

The New York Edison Co., Irving Place and Fifteenth Street, New York, has leased property bounded by Forty-second and Forty-third Streets, First Avenue and East River, for the establishment of a new coal storage and distributing plant. Unloading, conveying and other mechanical handling equipment will be installed.

The Fred L. Lavanberg Co., 100 William Street, New York, manufacturer of colors, color pigments, etc., has plans for a one-story plant, 100 x 200-ft., at 166 North Twelfth Street, Brooklyn, to cost about $75,000 with equipment. W. S. Boyle, 100 William Street, is architect.

Charles Beinert, 501 Van Duzer Street, St. George, Staten Island, has acquired property at Richmond Valley as a site for a proposed ice-manufacturing plant, for which plans will soon be prepared. It is reported to cost about $30,000 with equipment.

O. B. Almgren, 8801 Third Avenue, New York, architect, has plans in progress for a two-story automobile service, repair and garage building, 100 x 130-ft., at 107-15 Crom Street, estimated to cost $65,000 with equipment.

The Pequot Mfg. Co., Thompson Avenue, Long Island City, manufacturer of corrugated boxes and containers, is completing the first unit of its new plant at Glendale, L. I., and will occupy at once. Other units will be constructed in the near future. The entire project is reported to cost in excess of $100,000.

The Board of Water Commissioners, East Williston, L. I., is asking bids until July 19 for equipment for improvements in the water supply system, including one centrifugal pumping unit, belt-driven with 50-hp. fuel oil engine, and air compressor direct-connected to engine for air lift, with complete accessories; pump to have rated capacity of 300 gal. per min., and one 60,000-gal. capacity steel tank on 125-ft. steel tower. George A. Fairfield, Mineola, L. I., is engineer. Hermine Tompkins is secretary.

The Mack International Motor Truck Corporation, 25 Broadway, New York, has awarded a general contract to the Turner Construction Co., for a one-story service, repair and garage building, 170 x 361 ft., at White Plains, N. Y., to cost about $180,000 with equipment. Faile & Seelye, 101 Park Avenue, New York, are architects.

Richard Shutkind, 147 Fourth Avenue, New York, architect, has filed plans for a two and three-story automobile service, repair and garage building, 60 x 200 ft., at 330 East Twenty-eighth Street, extending through to East Twenty-seventh Street, to cost $80,000 with equipment.

Charles M. Laidlaw, 1799 Clove Avenue, West New Brighton, S. I., manufacturer of automobile springs, etc., has plans for a one-story addition, 30 x 65 ft. F. W. Fosberg, Westcott Boulevard, is architect.

The International Match Corporation, 25 West Forty-third Street, New York, is arranging for an increase in capital from 900,000 to 1,350,000 shares of stock, a portion of the fund to be used for expansion.

Ovens, power equipment, conveying and other machinery will be installed in the proposed plant and distributing works to be constructed at Birmingham by the Ward Baking Co., 367 Southern Boulevard, New York, to cost in excess of $350,000. A site has just been acquired.

The Erie Railroad Co., 50 Church Street, New York, is completing plans for the construction of the first unit of its proposed freight terminal warehouse project at Jersey City, N. J. The initial structure will be ten stories, with first four floors equipped for general freight storage and distributing, and remaining stories to be used for a cold storage warehouse and refrigerating plant. Complete mechanical freight-handling equipment will be installed. The unit will cost approximately $5,000,000 and is slated to be ready for service next spring. Three similar units are projected, with ultimate cost of entire project placed at $22,000,000. John J. Mantel is vice-president and general manager.

A two-story automobile service, repair and garage building, 70 x 100 ft., for company motor trucks and cars, will be erected by the Dairy Made Ice Cream Co., 252 Twentieth Avenue, Paterson, N. J., to cost in excess of $55,000 with equipment. James Holt, 132 Market Street, is architect.

The Bayway Terminal, South Front Street, Elizabeth, N. J., has preliminary plans under way for a new terminal and

warehouse development, to be used primarily for cotton storage and handling. The project will include new dock space, with machinery for unloading and loading 7500 bales of material in three 8-hr. shifts, or a total of about 150 freight cars in such time. The new warehouse will provide for an increase of 50,000 bales, making a total warehouse capacity of 100,000 bales at one time, this to be increased later. In addition to elevating, conveying and other equipment, the company will install a high density compress. The entire project is estimated to cost $5,000,000.

The Board of Education, Union City, N. J., contemplates the installation of manual training equipment in its proposed three-story and basement school at Summit Avenue and Twenty-ninth Street, to cost $600,000, for which bids will be asked on a general contract early in August. Joseph D. Lugosch, 114 Bergenline Avenue, is architect.

Fire, July 8, destroyed a portion of the plant of the Atlantic Tank & Barrel Corporation, Jersey Avenue and Eighteenth Street, Jersey City, N. J. An official estimate of loss has not been announced. It is planned to replace the damage.

The Borough Council, Brooklawn, N. J., is said to be considering the installation of pumping equipment in connection with a proposed municipal waterworks, estimated to cost $55,000.

Fire, July 9, destroyed a portion of the car and repair shops of the Pennsylvania Railroad Co., at Kearny, N. J., including bolt and nut building, lumber mill, and other structures, with loss reported in excess of $125,000. Plans for rebuilding are said to be under consideration.

The Orange Tapered Roller Bearing Co., 75 North Jefferson Street, Orange, N. J., is arranging to devote a considerable portion of output to the manufacture of a roller bearing with non-friction cage, for which patents have recently been secured by C. W. Chisholm, vice-president, using a high carbon chrome alloy steel, with bronze metal for cage, and division for rollers of thin pressed steel. Mr. Chisholm was formerly connected with the Worthington Pump Works, Harrison, N. J.

The Cooper Hewitt Electric Co., 9 River Street, Hoboken, N. J., has plans under way for a six-story addition, 100 x 425 ft., to cost in excess of $175,000 with equipment. Lockwood, Greene & Co., 1 Pershing Square, New York, are architects and engineers.

The Department of Water Supply, Gas & Electricity, Municipal Building, New York, has filed plans for a two-story shop, with service, repair and garage building for municipal motor trucks and cars, on Jerome Avenue, 70 x 100 ft., to cost about $100,000 with equipment. William N. Brush is architect for the department.

P. M. Brotherhood & Son, with offices at 25 Church Street, New York, and 415 Elmwood Avenue, Buffalo, are now representing the Cleveland Planer Co., Cleveland, exclusively in the sale of Cleveland open-side planers in the eastern and western New York territory.

Buck, Klaer & Co., Inc., has been appointed exclusive sales agent in the United States for the Trafikaktiebolaget Grangesberg-Oxelosund, Stockholm, Sweden.

The New York Wire & Spring Co. on July 1 removed from Hoboken to its new building at 136 Tichenor Street, Newark, where enlarged space and additional facilities will enable it to meet the increasing demands for its product.

Ireland Aircraft, Inc., Garden City, Long Island, has been incorporated with capital stock of $100,000 to manufacture airplanes and parts. The company has its plant fully equipped, but is in the market for materials.

The L. W. Jones Tool Co., Inc., 2382 Grand Concourse, New York, has recently been incorporated and is manufacturing on contract the following articles: Pipe bench for electricians, pipe bench for plumbers, steamfitters and other trades, extension bit for electricians and carpenters, boring machine, ratchet handle used in connection with boring machine and a circular saw also used in conjunction with the boring machine.

Buffalo

BUFFALO, July 12.

ESENWEIN & JOHNSON, Ellicott Square, Buffalo, architects, will soon ask bids for a new automobile service, repair and garage building, 91 x 170 ft., at Rochester, N. Y., for the Rochester Westside Auto Co., to cost about $200,000 with equipment.

The Oswego Falls Corporation, Fulton, N. Y., operating the Oswego Falls Pulp & Paper Co., the Sealright Co., and other paper and pulp interests, is disposing of a bond issue of $2,300,000, a portion of the proceeds to be used for expansion and betterments. H. L. Paddock is president.

The Board of Education, Westfield, N. Y., contemplates the installation of manual training equipment in a proposed two-story and basement addition at the high school, to cost $130,000, for which superstructure will soon begin. Oliver R. Johnson, Fenton Building, Jamestown, N. Y., is architect.

The Ritter Dental Mfg. Co., Inc., Rochester, N. Y., has been organized under Delaware laws, with capital of $12,500,000, to take over and expand the present company of the same name, with plant at 404 West Avenue, to specialize in the manufacture of dental instruments, office lathes, electric engines, dental chairs, etc. The new company is disposing of a bond issue of $2,150,000, a portion of the proceeds to be used for reorganization and development. Edwin L. Wayman, general manager of the former company, will be president of the new organization.

The Board of Education, North Rose, N. Y., is considering the installation of manual training equipment in its proposed two-story and basement high and grade school estimated to cost $200,000, for which it is expected to ask bids on a general contract early in the fall. Carl Ade, 104 East Avenue, Rochester, is architect.

Chicago

CHICAGO, July 12.

ALTHOUGH some recession in business is expected this month and in August, which is the customary vacation period, machine tool buying since the first of July has been in encouraging volume and several attractive inquiries have made their appearance. The Chicago & North Western has entered the market for 29 machine tools, and the Nordyke & Marmon Co., Indianapolis, is inquiring for a total of 120 production machines, either used or new, for the manufacture of a light eight-cylinder automobile, which will represent an addition to its present line of Marmon cars. The Illinois Central continues to place orders and is believed to have purchased most of the equipment on its extensive list. The International Harvester Co. is still placing orders for its Rock Island, Ill., tractor works. There continue to be numerous small orders from a diversity of users. The Piston Ring Co., Muskegon, Mich., has bought eight 53-in. disk grinders.

Another manufacturer of ball bearing drills has announced changes in prices, advancing ½-in. machines 10 per cent and readjusting quotations on ¾-in. machines.

Chicago & North Western Railway

(All machines to be equipped with motors except hand-operated bending brakes, steam hammer and portable press.)

One 24-in. crank planer.
Two Oster, or equivalent, threading machines to handle pipe up to 4 in.
One 600-ton hydraulic driving wheel press.
One high Speed Marvel No. 4, or similar, hack saw.
Two hand-operated 36-in. steel bending brakes.
One 75-ton hydropneumatic Chambersburg, or similar, bushing press.
One 6-ft. full universal Niles, or similar, radial drill.
One Dumore, or equivalent, bench grinder.
One 2500-lb. Niles, or similar, single frame steam hammer.
One 90-in. tire-turning lathe.
One 90-in. inside and outside journal-turning, hub-facing, crank pin-turning and boring machine.
Two straight line, No. 10 Niles, or equivalent, radial drills.
One Lennox, or equal, rotary bevel shear.
One twist drill grinder, equal to Sellers or Brown & Sharpe.
One six-spindle Lassiter, or equal, staybolt threading machine
One bending brake, with capacity for ⅜-in. plate, 12 ft. 1 in. long.
Two Milwaukee, or equal, jolt, squeeze and draw molding machines.
One 4½-in. x 8-ft. Underwood, or equal, cylinder boring bar to bore valves 11 in. to 16 in. in diameter and cylinders 18 in. to 30 in. in diameter.
One 84-in. Bridgeport, or equal, heavy duty face grinder.
One double head emery wheel grinder for 18 x 2½-in. wheels complete with safety guards, glass shield and two pairs each of 10-in., 12-in. and 14-in. safety collars.
One 250-ton portable hydraulic crank pin press.
One Peerless, or similar, high speed hack saw with positive feed.
One Barnes, or similar, sensitive drill.
One hand-operated steel bending brake, with capacity for No. 14 gage plate, 10 ft. 1 in. long.
One combination hot saw and tube-expanding machine capable of handling 5½-in. superheater tubes.

The Crane Market

FEW new inquiries of any size have appeared in the past week for either locomotive or overhead cranes. Included in business still pending are the cranes for the New York Rapid Transit Corporation, Brooklyn, N. Y., the two 150-ton cranes for Stone & Webster, Inc., and a list of cranes for West Philadelphia, Buffalo and Schenectady under inquiry by the General Electric Co. Among locomotive crane inquiries is the 20-ton crane for the New York Central and a 25-ton crane for the Pennsylvania Railroad. The New York Rapid Transit Corporation, 85 Clinton Street, Brooklyn, N. Y., in addition to its list of 24 cranes is asking for prices on four coach hoists for lifting the bodies of cars from the trucks, and two transfer tables.

Among recent purchases are:

Stone & Webster, Inc., Boston, a 25-ton electric locomotive crane for the American Sugar Refining Co., from the Browning Crane Co.

Delaware, Lackawanna & Western Railroad, a 15-ton locomotive crane for Scranton, Pa., from the American Hoist & Derrick Co.

George E. Beece Lumber Co., a gasoline operated steam shovel with ¾-cu. yd. shovel from the American Hoist & Derrick Co.

Michigan Central Railroad, a 25-ton locomotive crane from the American Hoist & Derrick Co.

William G. Atwood, 50 Church Street, New York, a 20-ton used locomotive crane from Forsythe Brothers, 30 Church Street, New York.

Wiggins Terminal Co., Boston, a 25-ton locomotive crane from an unnamed builder.

Diamond Alkali Co., Painesville, Ohio, a limestone handling bridge for unloading and stocking, from Heyl & Patterson, Inc.

By-Product Coke Corporation, South Chicago, Ill., a 12-ton coal stocking and reclaiming bridge from Heyl & Patterson, Inc.

Batson-McGehee Co., Millard, Wis., a log loader from the American Hoist & Derrick Co.

Ballinger Co., 100 East Forty-second Street, New York, two 5-ton, 46-ft. 11¼-in. span hand power cranes for Flushing warehouse of the M. O'Neil Supply Co., 25 Cliff Street, New York, from a Northwestern builder.

Wheeling Steel Corporation, Wheeling, W. Va., two 10-ton, 92-ft. span overhead cranes for new skelp mill at Benwood, from the Alliance Machine Co.

Carnegie Steel Co., Pittsburgh, a 50-ton crane bridge for the 52-in. universal mill at Homestead, from the Alliance Machine Co.

Forged Steel Wheel Co., Butler, Pa., two 10-ton overhead cranes from the Cleveland Crane & Engineering Co.

Weirton Steel Co., Weirton, W. Va., eleven overhead cranes for a new strip mill, from the Morgan Engineering Co.

The John Deere Spreader Works, East Moline, Ill., has begun the construction of a foundry addition, 64 x 84 ft., to cost $20,000.

The York Ironer & Appliance Co., formerly at Peoria, Ill., but recently purchased by a group of Beardstown, Ill., men, will construct a factory in Beardstown.

The Chicago Pneumatic Tool Co., 572 West Randolph Street, Chicago, has purchased 12,270 sq. ft. in the central manufacturing district on Iron Street, and will erect a building with 14,000 sq. ft. of floor space, to be used as a service station, stock room and office.

E. E. Franzen, Mitchell, Neb., is building an addition to his machine shop on West Elm Street.

The L. A. Althoff Mfg. Co., manufacturer of stoves, formerly at Laporte, Ind., has moved its plant to Des Plaines, Ill.

The Wagner Malleable Iron Co., Decatur, Ill., has let contract for the construction of a building to cost $25,000, to house five new 50-ton muffle-type annealing ovens.

The Wood Hydraulic Hoist & Body Co., 3136 South Wabash Avenue, Chicago, plans to erect a triangular factory on a tract, 198 x 300 ft., at Thirty-seventh Street and Princeton Avenue, which it recently purchased. It is estimated to cost $100,000.

The Western United Gas & Electric Co., Murphysboro, Ill., plans to rebuild the portion of its power plant recently destroyed by fire.

The Eagle City Cordage Co., Winthrop, Minn., contemplates rebuilding the portion of its steam-operated power plant recently destroyed by fire.

The plant of the Continental Brass Foundry, 4117-23 West Kinzie Street, Chicago, was recently damaged by fire.

The Maremont Mfg. Co., Chicago, maker of automobile springs and commercial bodies, has removed its body plant from 916 South Wabash Avenue, where it has been located since 1877, into a new two-story, concrete factory and office building extending from Sixteenth to Seventeenth Streets on Ashland Avenue, Chicago. The second floor of the new plant will be used for the manufacture of automobile bodies while the main floor will contain the general offices and a spring service station. The new building is adjacent to the company's spring plant on Laflin Street.

The Appleton Electric Co., 1701 Wellington Street, Chicago, manufacturer of electrical products, has awarded a general contract to A. A. Lundstrum, 77 West Washington Street, for the erection of its proposed four-story and basement factory addition, to cost $200,000 with equipment. Walter W. Alschlager, Inc., 65 East Huron Street, is architect.

The Strong-Scott Mfg. Co., 413 South Third Street, Minneapolis, Minn., manufacturer of flour mill machinery, etc., will defer the erection of its proposed addition until early in the winter. It will be two-stories and basement, 100 x 500 ft., estimated to cost $175,000, with equipment. Larson & McLaren, Baker Building, are architects.

Fire, July 8, destroyed the machine shop and other portions of the plant of the Southern Malleable Iron Co., East St. Louis, Ill., with loss reported at close to $450,000 including equipment. Plans for rebuilding are under consideration.

The People's Light & Power Corporation, Minneapolis, Minn., operated by the W. B. Foshay Co., same city, has arranged for a bond issue of $3,500,000, the proceeds to be used for extensions and improvements, including the acquisition of additional properties. The company has acquired the property of the Globe Light & Power Co., Globe, Ariz., and has formed the People's Arizona Gas & Electric Co., to operate the utility. Extensions and betterments are under advisement.

The S. Karpen & Bros Co., 636 West Twenty-second Street, Chicago, manufacturer of furniture, has awarded a general contract to the Krahl Construction Co., 350 North Michigan Avenue, for its proposed six-story and basement plant, 86 x 195 ft., to cost $600,000 with equipment. Marshall & Fox, 431 North Michigan Avenue, are architects.

The Minneapolis Roofing & Cornice Co., 1301 Central Avenue, Minneapolis, Minn., has plans under consideration for rebuilding the portion of its factory recently destroyed by fire, with loss reported at $50,000 including equipment and stock.

Philadelphia

PHILADELPHIA, July 12.

PLANS have been completed by the Baltimore & Ohio Railroad Co., Twenty-fourth and Chestnut Streets, Philadelphia, for a new cold storage and refrigerating plant on Delaware Avenue, reported to cost in excess of $175,000 with equipment. H. A. Lane is company engineer.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, has awarded contracts for prime movers for its proposed hydro-electric generating plant on the Susquehanna River at Conowingo, Md., to be operated in the name of the Susquehanna Power Co., a subsidiary. Orders for other equipment will be placed soon, including complete auxiliary apparatus. A 75-mile steel tower transmission line will be built to Philadelphia and vicinity, to operate at 220,000 volts.

The Reading Co., Reading Railway Terminal, Philadelphia, has filed plans for the construction of a coal trestle on Callowhill Street, to cost $32,000. Coal-handling facilities will be provided.

The Board of Education, Philadelphia, is considering the installation of manual training equipment in a proposed new elementary and junior high school at Hoffman and Loretto Streets, recommended by the committee on higher schools, estimated to cost $600,000. Irwin T. Catharine, Franklin Trust Building, is architect for the board. Manual training facilities will also be provided in the new disciplinary school for boys to be erected at Hancock and Wildey Streets at a cost of $340,000, for which super-structure will soon begin.

The E. F. Griffiths Co., 1421 McFerran Street, Philadelphia, manufacturer of meters, registers and parts, has acquired the one-story factory, on site, 100 x 320 ft., at

338 East Walnut Lane, and plot of land at 445 East High Street, for proposed expansion.

The Steel Heddle Mfg. Co., Twenty-first Street and Allegheny Avenue, Philadelphia, manufacturer of textile machine equipment, has awarded a general contract to the William Steele & Sons Co., 219 North Broad Street, for a five-story and basement plant, 50 x 210 ft., with one-story wing extension, 65 x 85 ft., estimated to cost $165,000. Clarence E. Wunder, 1520 Locust Street, is architect.

The plant addition of the Edward G. Budd Mfg. Co., Twenty-fifth Street and Hunting Park Avenue, Philadelphia, manufacturer of steel automobile bodies, will be one-story, instead of multi-story as previously announced, of saw-tooth roof type, 323 x 743 ft., to cost $600,000 with equipment. Plans have been filed.

The Camden Overland-Knight Motors, Inc., 1223 Haddon Avenue, Camden, N. J., is arranging for the erection of a two-story service, repair and garage building, to be ready for occupancy late in the fall. It is reported to cost about $75,000. The company will remove its present service station at 711 Pine Street to the new location and will install additional equipment. C. B. Grigg is secretary and treasurer.

Pardee Brothers & Co., Inc., 1600 Walnut Street, Philadelphia, coal miner and operator, has work under way on a new coal breaker at Lattimer Mines, Pa., for service at its anthracite properties in this section. It will cost in excess of $200,000 with machinery.

Plans are being completed for a merger of four Portland cement manufacturing companies with combined assets estimated at $40,000,000, comprising the Dexter Portland Cement Co., Nazareth and Penn Allen, Pa.; Pennsylvania Portland Cement Co., Bath, Pa.; Clinchfield Portland Cement Co., Kingsport, Tenn. and Perry, Ga.; and the Dixie Portland Cement Co., Chattanooga, Tenn. A bond issue will be arranged at once, a portion of the fund to be used for plant expansion and improvements, including the construction of a railroad from Chattanooga to Perry, about 7 miles. John A. Miller, president of the Dexter company, will be head of the consolidated organization. The combined output of the different mills will aggregate 10,000,000 bbl. per annum.

The Glen Alden Coal Co., Jefferson Avenue and Linden Street, Scranton, Pa., has plans for a two-story automobile service, repair and garage building, 80 x 160 ft., for company trucks and cars, to cost $100,000 with equipment.

The Northern Pennsylvania Power Co., Towanda, Pa., has been organized to take over and consolidate the Towanda Gas & Electric Co.; Susquehanna County Light & Power Co., Susquehanna; North Penn Power Co., Towanda; and the Sayre Electric Co., Sayre, Pa. The new company has arranged for a bond issue of $1,950,000 to carry out the merger and for proposed extensions and betterments in plants and system, including transmission line construction. The company will be under the direction of the General Gas & Electric Corporation, 50 Pine Street, New York. W. S. Barstow is head of both organizations.

The East Penn Foundry Co., Macungie, Pa., has plans for enlargements to double approximately the present capacity, including iron, brass and aluminum foundry divisions. It specializes in the production of plumbing equipment and supplies and is closely affiliated with the Fleck Brothers Co., 50 North Fifth Street, Philadelphia.

The Board of Education, New Castle, Pa., plans the installation of manual training equipment in a proposed new junior high school, to cost about $175,000, for which plans have just been authorized.

The Borough Council, Perkasie, Pa., has authorized plans for extensions and improvements in the municipal electric light and power plant, including the installation of a new turbine engine and auxiliary equipment, estimated to cost $40,000. Work will begin in the fall.

Fire, July 5, destroyed a portion of the storage and distributing plant of the American Lime & Stone Co., Bellefonte, Pa., with loss reported at $30,000, including equipment, parts, etc. It is proposed to build a larger structure to replace the building.

The M. & P. Iron and Metal Co., Inc., 725 Walnut Street, Philadelphia, has been incorporated to buy and sell scrap iron and metals. The officers are Max Myers, president; Louis Myers, secretary, and Effrim Perez, treasurer.

The Pennsylvania Mining Machinery Co., 1218 Chestnut Street, Philadelphia, has been incorporated to manufacture mining machinery but the company has no definite plans for announcement.

The Dean Hill Pump Co., Anderson, Ind., has opened an office at 816 Real Estate Trust Building, Philadelphia. R. W. Nagle is manager.

South Atlantic States

BALTIMORE, July 12.

WORK will soon begin on a two-story addition to the plant of the Goodyear Tire & Rubber Co., Cedartown, Ga., to be 150 x 500 ft., with one-story extension, 150 x 150 ft. A one-story warehouse and distributing plant, 60 x 100 ft., will also be built. The entire project will cost in excess of $350,000 with equipment. Lockwood, Greene & Co., 1 Pershing Square, New York, are architects and engineers. Headquarters are at Akron, Ohio.

The Homeward Garage Co., St. Paul and Thirty-fourth Streets, Baltimore, has awarded a general contract to the Consolidated Engineering Co., 20 East Franklin Street, for a two-story service, repair and garage building, 104 x 145 ft., to cost about $100,000 with equipment. Palmer, Willis & Lamdin, 513 North Charles Street, are architects.

A fund of about $1,000,000 has been arranged by the Norfolk & Western Railway Co., N. & W. Railway Building, Roanoke, Va., for improvements and equipment for its line from Roanoke to Winston-Salem, N. C., including electrical apparatus, transmission lines, automatic block signals, etc.

The United States Engineer, Navy Department Building, Washington, is asking bids until Aug. 2 for furnishing and installing pneumatic conveying and dust recovering equipment for the water supply project for the District of Columbia.

The Virginia Electric & Power Co., Richmond, Va., is said to have preliminary plans for a new steam power plant on Davis Avenue, to cost about $18,000 with equipment.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a two-drum belted friction hoist, with 15-hp. gas or oil engine for operation; a 15-ft. screen, about two 5-ft. sections, ½ to ¾-in. mesh; a stationary engine, Corliss type, 18 x 36 in., slow speed, flywheel with about 36-in. face, and for a ¾-yd capacity bottomless scraper.

The Southern Furniture Co., Burlington, N. C., has awarded a general contract to Sharpe & Bryan, Burlington, for a proposed new plant, 100 x 270 ft., estimated to cost $225,000 with machinery.

A bill has been approved by Congress for the construction of a steam-operated electric power plant, 80 x 150 ft., for the Bureau of Standards, Washington, A. C. Brown, acting director. The installation will include boilers, stokers, turbo-generator, condensers, pumps, coal-crushing and conveying machinery, feed-water heaters, mechanical draft apparatus, etc., with accessory equipment and instruments. It is estimated to cost close to $200,000.

The Wood Hydraulic Hoist & Body Co., James and Cross Streets, Baltimore, has acquired property at Taylor Avenue and Curtain Street, 100 x 172 ft., as a site for a proposed new factory branch, service and sales building, to cost $75,000. Headquarters are at 7924 Riopelle Street, Detroit.

The Pigeon River Power Co., Asheville, N. C., has made application to proceed with the construction of a proposed hydroelectric generating plant on the Big Pigeon River, near Waterville, N. C. The entire development is reported to cost close to $10,000,000, including power dam and steel tower transmission line. Headquarters are at 71 Broadway, New York.

The Columbus Fender & Body Works, 1318 Broad Street, Columbus, Ga., have construction under way on a new one-story plant, 60 x 150 ft., to cost approximately $40,000. The present plant will be removed to the new location and additional equipment installed. The company purposes to develop its line of commercial bodies for small cars and advance the output of custom built bodies. J. J. Flanigan and J. H. Wynn are heads.

The Columbus Electric & Power Co., Columbus, Ga., is disposing of a note issue of $2,000,000, a portion of the fund to be used for extensions and improvements. The company is affiliated with the South Georgia Power Co.

The F. B. Harris Co., Albany, Ga., is considering the construction of a one-story cold storage and refrigerating plant to cost about $25,000 with equipment.

The R. S. Armstrong & Brother Co., Atlanta, Ga., machinery dealer, has been making inquiries for a 5000-lb. steam-operated pile hammer; also for a 200 kw. electric generator, 3-phase, 60-cycle, 600 volts.

The Broad River Power Co., Columbia, S. C., has acquired the Enoree Power Co., Enoree, S. C., with main generating station at Van Patton Shoals, S. C., and will consolidate with its organization. Tentative plans are under advisement for extensions and betterments in the Enoree district, including transmission line construction. The purchasing company has work in progress on enlargements in its steam-operated electric power plant on the Broad River. The company is operby the General Gas & Electric Corporation, 50 Pine Street, New York.

The Southern Pulp & Naval Stores Co., Inc., Dublin, Ga., has begun the construction of its proposed local mill for the manufacture of kraft pulp. The works will include a by-products division for the production of turpentine, rosin and affiliated specialties. The complete project will cost close to $650,000. C. M. Thorsen is president, and E. H. French, vice-president and chemical engineer.

The Baltimore Hanger Mfg. Co., 600 President Street, Baltimore, recently organized, will continue an existing plant at South Montrose, Pa., for the production of coat hangers and kindred specialties. It is planned to establish an enameling works at 4-8 West Conway Street, Baltimore. Wilson L. Hoffman heads the company.

The Pennsylvania Railroad Co., Norfolk, Va., and Broad Street Station, Philadelphia, will soon begin work on its proposed freight yards and terminal at Little Creek, near Norfolk, to include the erection of mechanical buildings, freight storage and distributing buildings, transfer bridges, etc., to cost in excess of $1,000,000.

The Board of Education, Columbia, S. C., is considering the installation of manual training equipment in a proposed two-story senior high school to cost about $175,000, for which plans will be prepared by J. B. Urquhart, Palmetto Building, architect.

The Simonds Saw & Steel Co., Fitchburg, Mass., has opened a branch at 98-100 South Forsyth Street, Atlanta, Ga. F. H. Morton is manager. Business for the Southeastern section has heretofore been handled through the office in Boston.

New England

BOSTON, July 12.

WITH July almost half over, there is a marked contrast in machine tool sales in this territory as compared with the first half of June. Most machine tool houses did more business the first six months of 1926 than in the corresponding periods of 1925, 1924 and 1923. Sales the past week were limited to an occasional small new and used tool.

Interest is centered largely in the requirements of the Boston School Board. For the first lot of tools, consisting of 24 lathes, a wet tool grinder, two sensitive drills, an arbor press, shaper, vises and gas furnaces, Henry Prentice & Co., Inc., was low bidder at $27,142 on Willard lathes, formerly made in Michigan, but to be made hereafter at Hatfield, Mass., Joseph Beal & Co. was second lowest bidder at $27,926.41, while Manning, Maxwell & Moore, Inc., was high bidder at $36,137. For the second lot of lathes required for the East Boston school, Hill, Clarke & Co., Inc., was low bidder at $27,700, as well as for the grinding and milling machine equipment. Henry Prentice & Co., Inc., was the highest bidder on this lot of lathes at $38,087. Bids closed Thursday, July 8, on one planer, four shapers, two milling machines, a sensitive drill, a power hack saw, two punching presses and blacksmiths' tools, but no awards have been made. These machines are for the Mechanics Art School. Bids also closed July 8 for sheet metal-working equipment for the Jamaica Plain school and for wood-working tools for the Parkman school. On July 15 bids will close on wood-working equipment for the Elihor Greenwood, Lowell, Robert Gould Shaw, Dudley, Phillips Brooks, Warren, Sherwin and Christopher Gibson schools.

Ernest P. Robetaille, 570 Riverside Avenue, Somerville, Mass., will build a one-story, 35 x 50 ft. repair shop at 135 Linwood Avenue. Plans are private.

The Eastern Massachusetts Street Railway Co., 1 Beacon Street, Boston, is taking bids on power house alterations and a new car barn and repair shop to be erected at Salem, Mass. The company's engineer is in charge of plans.

Adden & Parker, 177 State Street, Boston, architects, are preparing plans for a proposed three-story junior high school, to cost approximately $400,000, for Reading, Mass. Joseph D. Knight, board of selectmen, is in charge of the project for the town. A manual training department will be installed.

The J. W. Greer Co., 119 Windsor Street, Cambridge, Mass., candy cooling apparatus, has plans for a two-story and basement, 63 x 80 ft., factory.

Plans will be ready in about a week for a proposed three-story, 60 x 125 ft., manufacturing plant for the Metropolitan Lithograph & Publishing Co., Dana Street, Everett, Mass. W. P. Hatch, 60 State Street, Boston, is the architect.

Brainerd & Leeds, 89 Franklin Street, Boston, architects, are taking bids on a two-story high school, containing mechanical training departments, for Duxbury, Mass. B. S. Goodrich is chairman of the Duxbury building commission.

The Star Pin Co., Derby, Conn., the New England Pin Co., Winsted, Conn., and the National Pin Co., Detroit, have been consolidated. During the latter part of the year the business of the Winsted and Detroit plants will be moved to Derby.

The Eastern Malleable Iron Co., Naugatuck, Conn., has awarded a general contract to the Clark Construction Co., Waterbury, Conn., for a one-story and basement addition, 125 x 200 ft.

The Mack International Motor Truck Co., 75 North Beacon Street, Boston, with headquarters at 25 Broadway, New York, has awarded a general contract to the Scully Co., 118 First Street, Cambridge, Mass., for a two-story addition to its service, repair and garage building in the Brighton district, totaling about 40,000 sq. ft. of floor area, estimated to cost $150,000 with equipment.

The Trumbull Electric Mfg. Co., Plainville, Conn., manufacturer of electric switches, etc., has acquired the factory of the Post-Glover Electric Co., Cincinnati, manufacturer of electric cabinets, etc., at Ludlow, Ky., and will equip for a new branch plant. John H. Trumbull, Governor of Connecticut, is president.

Fire, July 3, destroyed a portion of the wood-working shops and other departments at the plant of the J. W. Bishop Co., Mechanic Street, Worcester, Mass., general contractor, with loss reported in excess of $200,000 including equipment and stock. Plans are under way for rebuilding.

The Connecticut Co., New Haven, Conn., has filed plans for the proposed addition to its power plant at 450 Grand Avenue, to be 20 x 104 ft. Additional equipment will be installed.

The Textile Finishing Machinery Co., Sims Avenue, Providence, R. I., has awarded a general contract to Newton D. Benson, 36 Burrington Street, for two one-story additions, each 64 x 100 ft.

Fire, July 3, destroyed a portion of the plant of the Groton Mfg. Co., Groton, Vt., manufacturer of handles and other turned wood products, with loss reported in excess of $30,000 including equipment. It is planned to rebuild.

The Hartford Empire Co., 347 Homestead Avenue, Hartford, Conn., manufacturer of mechanical equipment, etc., has plans for a three-story addition, 53 x 90 ft., to cost close to $60,000 with equipment. Buck & Sheldon, Inc., Hartford, is architect and engineer.

The Hartford Special Machinery Co., Homestead Avenue, Hartford, Conn., has asked bids on general contract for a one-story addition, 30 x 90 ft. Buck & Sheldon, Inc., 60 Prospect Street, is architect and engineer.

The Forsyth Garage Corporation, 70 Forsyth Street, Boston, has plans for a new two-story and basement service, repair and garage building, 188 x 190 ft., to cost $125,000 with equipment. S. S. Eisenberg, 46 Cornhill Street, is architect.

St. Louis

ST. LOUIS, July 12.

PLANS are being considered by the Missouri Casket Co., 2105 East Ninth Street, Kansas City, Mo., for a new factory to cost about $65,000 with equipment. E. T. Newcomer is president.

Fire, July 5, destroyed a portion of the plant of the Southern Acid & Sulphur Co., Texarkana, Ark., with loss reported at $40,000 including equipment. It is planned to rebuild.

The St. Louis Car Co., 800 North Broadway, St. Louis, has awarded a general contract to the Raterman Building & Contracting Co., 1943 St. Louis Avenue, for a one-story addition, 130 x 1,000 ft., for general shop service and assembling; also for a smaller one-story structure, 60 x 100 ft., with crane runway. A 10-ton traveling crane will be installed. The entire project will cost in excess of $500,000 with equipment.

The International Harvester Co., 2508 North Broadway, St. Louis, and 608 South Michigan Avenue, Chicago, is reported to be planning the construction of a new service, repair and sales building on West Pine Boulevard, to cost about $100,000 including equipment. W. H. Bray is local manager.

The Empire Electric Co., Seneca, Mo., will take over and operate the local municipal electric light and power plant. Plans are under advisement for extensions and improve-

ments in this section, including transmission line construction.

The City Council, Bartlesville, Okla., plans the installation of pumping equipment and accessory machinery in connection with a proposed municipal water supply system, for which a bond issue of $1,000,000 is being arranged. E. T. Archer & Co., New England Building, Kansas City, Mo., are consulting engineers.

The Tate Motor Co., 2001 Locust Street, St. Louis, F. R. Tate, president and treasurer, has awarded a general contract without competition to the Widmer Engineering Co., Laclede Gas Building, for a two-story and basement service, repair and garage building, 125 x 145 ft., at Webster Groves, Mo., to cost about $125,000.

The Planters' Cotton Oil Mill Co., 1021 East Fifth Street, Pine Bluff, Ark., will proceed with the erection of a new one-story mill, 50 x 325 ft., to cost $50,000, to replace a structure recently destroyed by fire. New equipment will be installed.

The Luxora Cooperage Co., Caruthersville, Mo., is considering the erection of a one-story stave mill to cost about $30,000 with equipment.

Hans Von Unwerth, Finance Building, Kansas City, Mo., architect and engineer, has plans for a two-story automobile service, repair and garage building to cost about $200,000 with equipment.

The City Council, Oneida, Kan., is planning the installation of pumping equipment in connection with a proposed municipal waterworks, estimated to cost $40,000. E. T. Archer & Co., New England Building, Kansas City, Mo., are consulting engineers.

The Missouri Pacific Railroad Co., Railway Exchange Building, St. Louis, is said to be planning the construction of new car repair shops at Hot Springs, Ark., to cost in excess of $75,000 including equipment. A 50,000-gal. water tank, cinder conveyor and other equipment will be installed in connection with a local steam-heating plant. E. A. Hadley is chief engineer.

Cincinnati

CINCINNATI, July 12.

MACHINE tool business is holding up fairly well and the market has been enlivened by a number of inquiries of lesser importance and the report of a list for about 120 machines from a maker of motor cars in Indianapolis. Inquiries for single machines have been received from Erie, Pa., Chicago, and Philadelphia. Railroad business has been quiet. The Louisville & Nashville was reported in the market for a few lots of tools. It is understood that the Seaboard Air Line has withdrawn its inquiry for the present.

Fire, July 6, destroyed a portion of the plant of the Federal Products Co., Carthage, near Cincinnati, manufacturer of industrial alcohol, etc., with loss reported at $75,000, including equipment. It is planned to rebuild.

The Board of Education, Ludlow Building, Dayton, Ohio, is said to be planning the installation of manual training equipment in its proposed two-story Lincoln junior high school estimated to cost $400,000. Walker & Norwick, American Building, are architects.

The Southern Cities Power Co., Provident Building, Chattanooga, Tenn., is considering the construction of a new steam-operated electric power plant at Selmer, Tenn., to cost in excess of $50,000. It has recently acquired the municipal electric power stations at Clifton and Parsons, Tenn., and will make extensions in these districts.

The Casey-Hedges Co., Vulcan Street, Chattanooga, Tenn., manufacturer of boilers, tanks and other plate products, has authorized plans for a new unit for the production of steel barrels and drums, to cost approximately $175,000 with machinery. It is said that a subsidiary company will be organized to operate the new division.

Plans have been filed for the construction of a one-story manual training shop at the Central high school, Columbus, Ohio, by the Board of Education, 270 East State Street, estimated to cost $75,000. Howell D. Smith is architect for the board.

The Arrow Sand & Gravel Co., Columbus, Ohio, has concluded arrangements for the purchase of the former plant and site of the Franklin Furnace, West Mound Street, and plans the construction of a new sand and gravel storage and distributing plant, with conveying, loading and other equipment, estimated to cost approximately $250,000. W. H. Hoagland is treasurer.

The L. J. Breed Equipment Co., James Building, Chattanooga, Tenn., machinery dealer, has inquiries out for a steam-driven air compressor, capacity about 1500 cu. ft. per min.; also for a gasoline-driven air compressor.

The Louisville Chair & Furniture Co., 625 East Market Street, Louisville, has acquired a five-story factory at St. Louis Avenue and Eleventh Street, and will remodel for a new plant. The expansion is estimated to cost $30,000 including machinery.

The Wyckoff Drawn Steel Co., Pittsburgh, has moved its Dayton office from the U. B. Building to 1128 Third National Building.

Milwaukee

MILWAUKEE, July 12.

DESPITE lack of a broad expansion movement in foundry and machine shop industries and only a few projects of large size being undertaken, the machine tool industry is surprisingly well supplied with orders. While sales during the fore part of July showed a decline, probably owing to the extended holiday, evidence of a pick-up is again at hand. Tool production in this center is equal to the highest mark this year, with every prospect of a further continuance for at least four months.

The Common Council, Menasha, Wis., is calling for bids for furnishing and installing a 600-hp. oil engine and generator for the municipal water and light plant, supplementing a unit of similar size installed two years ago. Tenders will be opened July 22. N. G. Remmel is mayor.

The Valley Cylinder Regrinding Co., Menasha, Wis., has been organized with $15,000 capital stock by David Bowles, Jr., Charles Thalke and Arthur Bell to engage in the general automotive and machinery repair and service business. A shop has been acquired and the bulk of equipment requirements met for the present.

The Badger Meter Mfg. Co., 841 Thirtieth Street, Milwaukee, water meters, has rejected bids opened July 6 for the construction of a two-story manufacturing addition, but will take new bids on revised plans until July 16. The architects are M. Tullgren & Sons, 9 Waverly Place, local. J. J. Leach is president and general manager.

The J. E. Gilbert Grinder Co., 214 Greenbush Street, Milwaukee, maker of tool grinders and other mechanical specialties, has increased its capitalization from $25,000 to $45,000 to provide for extensions.

The Pittsburgh Plate Glass Co., 205 Lake Street, Milwaukee, will be ready about July 26 for bids for the construction of three plant extensions for the local division, known as the Patton-Pitcairn paint and varnish works. Plans are being completed by Kirchoff & Rose, architects, 210 Sycamore Street, local. Ludington Patton is vice-president and general manager of the Milwaukee division.

The Common Council, Wittenberg, Wis., will close bids July 21 on the construction and complete equipment of a municipal sewage system and sewage disposal plant, including pumps, motors, filters, tanks, etc. Plans are by W. G. Kirchhoffer, consulting engineer, Madison, Wis.

The Terminal Warehouse Co., Milwaukee, let the general contract to Henry Danischefsky, 1484 Humboldt Avenue, local, for the construction of a $400,000 cold storage warehouse, 50 x 90-ft., four stories and basement, and will soon be ready for bids on the artificial ice and refrigeration system. E. D. Fryer, 1432 Stowell Avenue, is president and general manager.

The Board of Education, Elkhart Lake, Wis., probably will accept the low bid of Joseph E. Mader, Gresham, Wis., for the construction of an $80,000 addition to the high school, in which provision is made for the first unit of a vocational training institute. The architect is Edward Tough, Madison, Wis.

The Wisconsin Iron & Wire Co., Milwaukee, has been awarded the contract for the ornamental iron, bronze, fire-escapes and miscellaneous iron to be used in the National Press Building, being erected in Washington, at Fourteenth and F Streets Northwest.

Detroit

DETROIT, July 12.

CONTRACT has been let by the L. A. Young Industries, Inc., 9200 Russell Street, Detroit, manufacturer of springs, wire goods and automobile specialties, to the H. G. Christman Co., 315 Stevens Street, for a five-story addition, 300 x 340 ft., to cost $450,000 with equipment. C. W. Brandt, Kresge Building, is architect.

The Munising Paper Co., Munising, Mich., has plans for a new loading and shipping dock to cost about $150,000.

Complete hoisting, conveying and other handling machinery will be installed.

The Chevrolet Motor Co., Flint, Mich., has awarded a general contract to J. A. Utley, Penobscot Building, Detroit, for one of its new plant units, comprising building No. 8, one-story, 246 x 460 ft., on West Kearsley Street, to cost about $500,000 with equipment. Wright & Nice, General Motors Building, Detroit, are architects.

Plans are under way for a merger of the Benton Harbor Malleable Foundry Co., Benton Harbor Auto Machine Co., General Die Casting Co., and the Benton Harbor Forging Co., all of Benton Harbor, Mich., and a special meeting of stockholders of all companies will be held at once to approve the consolidation. The new organization will be capitalized at $1,200,000. Plans are under advisement for extensions and improvements in the different plants.

The Standard Oil Co., 900 South Michigan Avenue, Chicago, has plans for a new one-story storage and distributing plant at Ann Arbor, Mich., to cost about $35,000. Schlinz & Bailey, 53 West Jackson Boulevard, Chicago, are architects. It will also build a steam power house and automobile service, repair and garage building for company trucks and cars, to cost approximately $40,000.

The Lincoln Forging Co., Detroit, is said to be contemplating the early construction of a new plant on Strong Avenue, to cost about $30,000 with equipment.

Officials of the Hunt Show Case Co., Detroit, are arranging for the incorporation of a new company of similar name, capitalized at $300,000, to take over and expand the present organization. About six acres has been acquired at Lansing, Mich., and plans will be soon drawn for a new factory to cost approximately $100,000. The present works will be removed to Lansing and considerable additional equipment provided.

The Board of Education, Iron River, Mich., plans the installation of manual training equipment in its proposed new high school estimated to cost $300,000, for which bids will be asked soon. Judson N. Churchill, Prudden Building, Lansing, Mich., is architect.

The Hendey Machine Co., Torrington, Conn., will take over the office of the W. M. Pattison Supply Co., 1534 Dime Bank Building, Detroit, on Aug. 1. Edward B. Barker will continue in charge as branch manager for the Hendey company.

The Oakland Motor Car Co. is to build a foundry, it is believed, at Pontiac, Mich.

Pittsburgh

PITTSBURGH, July 12.

LOCAL machine tool dealers in general are finding July business a little slower than June. There is a fair amount of pending orders, but buyers appear to be taking more time in closing. New inquiries have also fallen off.

Bids will be received by the Water and Light Committee, Borough Council, Tarentum, Pa., until July 19 for equipment for the municipal electric power plant, including one 10-ton traveling crane; one 750-kw. turbo-alternator, with surface condenser and auxiliaries; two 442-hp. water-tube boilers, with superheaters, soot blowers and other accessories; and for the construction of one 7-ft. x 175-ft. chimney, radial block or reinforced concrete. Hudson & Myron, Wabash Building, Pittsburgh, are engineers. L. R. Hartley is secretary of the council.

The Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, has acquired the plant and property of the Franklin Mfg. Co., Franklin, Pa., manufacturer of asbestos products, bankrupt, adjoining its works at that place. The site will be used for expansion. Present buildings, it is said, will be razed, preparatory to other construction.

The Laurelton State Village, care of Philip B. Linn, 222 Market Street, Lewisburg, Union County, Pa., is asking bids until July 20 for the construction of a central steam heating plant and construction of a coal trestle. George S. Idell, 1510 Chestnut Street, Philadelphia, is architect.

The Borough Council, Grove City, Pa., is considering the construction of a one-story addition to the municipal electric light and power plant, 35 x 40-ft., and the installation of additional equipment, estimated to cost $47,000. Charles Foltz is borough engineer. E. H. Poehlman is superintendent of the electric station.

The Hutchinson Coal Co., Mount Clare, W. Va., is completing plans for the early rebuilding of the portion of its coal tipple recently destroyed by fire, with loss estimated at close to $38,000 including machinery.

The Grasselli Chemical Co., Guardian Building, Cleveland, is arranging to break ground for the initial unit of its proposed new plant at Wurtland, W. Va., estimated to cost $1,000,000 with machinery. The entire plant will consist of five units of approximately like size to cost a similar amount, making a total investment of about $5,000,000.

The Kopp Glass Co., Inc., Swissvale, Pittsburgh, has taken title to the former local plant of the Pittsburgh Lamp, Brass & Glass Co., on Carrie Street, which will be remodeled for a new works.

The Clairton School District, Clairton, Pa., is considering the installation of manual training equipment in the proposed two-story addition to the high school, estimated to cost $300,000, for which superstructure will soon begin. Charles W. Bates, 72 Twelfth Street, Wheeling, W. Va., is architect.

The Kuhlman Electric Co., Bay City, Mich., manufacturer of Kuhlman power, distribution and street lighting transformers, has appointed the Continental Sales & Engineering Co., 839 Oliver Building, Pittsburgh, its representative in that district.

Gulf States

BIRMINGHAM, July 12.

BIDS will be received by the United States Engineer, Florence, Ala., until July 22, for one electric traveling crane, 45 tons capacity.

The Humble Oil & Refining Co., Houston, Tex., has plans for the construction of a new gasoline refinery at Woodson, Throckmorton County, Tex., estimated to cost $60,000 with equipment. The project will be carried out in conjunction with the Reiter-Foster Oil Corporation, Houston.

The Silverhill Power Co., Silverhill, Ala., will proceed with the construction of a hydro-electric power development on the Fish River, reported to cost in excess of $125,000 with machinery. A transmission line will be built.

The City Council, Birmingham, has authorized a bond issue of $250,000 for the construction of municipal repair shops for which plans will soon be drawn. Equipment will be installed for motor truck and automobile repairs, road machinery, etc.

The Willard Storage Battery Co., Dallas, Tex., with headquarters at Cleveland, has had plans prepared for a two-story factory branch and distributing plant, 50 x 100 ft. An assembling department will be installed. The structure is estimated to cost $35,000 with equipment. J. A. Pitzinger, Dallas, is architect.

The American Sheet Metal Works, New Orleans, George Koehler, secretary and treasurer, is completing plans for a new one-story plant on Hagan Avenue to cost about $22,000 with equipment. Favrot & Livaudais, Hibernia Building, are architects.

The Planters' Cotton Oil Co., Yazoo City, Miss., has inquiries out for a feed water heater, 500 to 800 hp. capacity, Cochrane or similar type; also for a boiler feed pump and accessory equipment. J. O. Ashworth is head.

The Board of City Commissioners, Fort Lauderdale, Fla., is asking bids until Aug. 10 for equipment for a municipal sewage system, including three pumping stations and five ejector stations, with force mains, air mains, etc.; until Aug. 12 for a 3,000,000 gal. sewage treatment plant, complete with tanks, power plant and equipment. Solomon, Norcross & Kreis, Fort Lauderdale, are consulting engineers. B. J. Horne is city manager.

The Howard Motor Co., Bradenton, Fla., has completed plans for a two-story service and sales building, 95 x 100 ft., with one-story extension, 50 x 100 ft., to be equipped as a machine and repair shop. The structure will cost close to $50,000. J. H. Johnson, Bradenton, is architect.

The Weinberger Co., Hammond, La., has preliminary plans for a one-story ice-manufacturing plant with initial capacity of about 50 tons per day. A cold storage plant will also be built.

The Galveston Electric Co., Galveston, Tex., is said to be planning for extensions and improvements in its steam-operated electric generating plant on Twenty-sixth Street, formerly the property of the Brush Electric Co., recently acquired. Additional machinery will be installed. The project is estimated to cost $175,000. R. G. Tabor is construction engineer, in charge.

The City Council, Fort Pierce, Fla., plans the installation of pumping equipment in connection with a proposed municipal water plant in the Pinewood district, reported to cost $300,000. W. Austin Smith is city manager.

The Mississippi Ice & Utilities Co., Pascagoula, Miss., is considering extensions and improvements in its local ice-manufacturing plant, including the installation of additional

equipment, to cost in excess of $20,000. George E. Will is vice-president.

The Daniels Ornamental Iron & Wire Corporation, 731 Third Avenue, Birmingham, has acquired property at Ensley, Ala., as a site for a new factory, for which plans will be prepared soon. It is expected to cost about $35,000 with equipment.

The Signal Gasoline Co., Inc., Los Angeles, has acquired property in the oil and gas fields in Reagan County, Tex., and is reported to be planning the early construction of a new gasoline refining plant, to cost about $300,000 with machinery.

The Common Council, Colfax, La., plans the installation of pumping machinery in connection with a proposed municipal waterworks estimated to cost $45,000, for which bids will soon be asked. F. P. Joseph, Glenmora, La., is engineer.

The Florida Power & Light Co., West First Street, Miami, Fla., is said to be arranging an expansion and improvement program to cost approximately $1,500,000, including the construction of a new steam-operated electric power plant at Punta Gorda, with capacity of 3000 kw., to cost close to $500,000 with transmission lines and substation; installation of ice-manufacturing plants at Cocoa, Nocatee and other points; extensions and improvements in plant and system at Miami to cost approximately $600,000. A portion of a $12,000,000 bond issue now being sold, will be used for the work. S. R. Inch is president.

The Hillsborough County Board of Public Instruction, Tampa, Fla., is considering the installation of manual training equipment in a proposed new junior high school at Grove and Seventeenth Streets, for which site has just been selected, reported to cost in excess of $200,000.

The Roseland Veneer & Package Co., Roseland, La., plans to rebuild the portion of its mill recently destroyed by fire, with loss reported in excess of $300,000 with machinery.

Cleveland

CLEVELAND, July 12.

MACHINE tool trade was rather light the past week. Very little business came from the automotive industry in Detroit. Demand for used machinery is improving, most of the orders coming from outside dealers. Some good inquiries are pending for wood-working machinery.

The Glenn L. Martin Co., Cleveland, which recently took a large order for Government airplanes, is inquiring for presses and machine tool equipment for a plant extension. The Delco Light Co., Dayton, Ohio, is expected to come into the market shortly for presses, shears and tool room and other equipment for its new plant. A local machine tool builder is figuring on four or five turret lathes that are included in a list issued by the Nordyke & Marmon Co., Indianapolis.

The Wellman-Seaver-Morgan Co., Cleveland, has taken an order for four low type open-hearth charging machines of 7½ ton capacity for the Duquesne works of the Carnegie Steel Co. and for a special car dumper of 220,000-lb. capacity for the Florida Portland Cement Co. The Perry Iron Co., Erie, Pa., has placed an order with the General Electric Co., for a turbo blower with a capacity of 50,000 cu. ft. per min.

The Acme Mfg. Co., 2114 Woodland Avenue, Cleveland, manufacturer of lighting fixtures, will build a two-story plant, 54 x 170-ft. A. Sogg, 3030 Euclid Avenue, is architect.

The city of Cleveland is planning the erection of a garbage reduction plant, involving an expenditure of $800,000. H. Kregelius is city architect.

The Folberth Auto Specialties Co., 7900 Lake Avenue, Cleveland, has placed a general contract with the H. G. Slatmyer Son, 2003 Lakeside Avenue, for a two-story factory, 47 x 158-ft.

The Paragon Oil Refining Co., Toledo, Ohio., is planning the erection of a cracking plant and other improvements to its refinery.

The Edward N. Riddle Co., Toledo, Ohio, plans the construction of a factory for the manufacture of lighting fixtures, to include a machine shop and foundry.

The Rand Kardex Co., Tonawanda, N. Y., is planning the construction of a five-story, 88 x 100-ft. plant at Marietta, Ohio, for the manufacture of steel cabinets.

The city of Cleveland is taking bids for a pump house to be erected at the Kirtland pumping station.

The Sawyer Gear & Mfg. Co., 5122 St. Clair Avenue, Cleveland, will erect a two-story factory addition, 46 x 70-ft.

The Western Sales & Engineering Co., Cleveland, has been organized to act as a sales agency for the line of furnaces built for Holcroft & Co., Detroit, rust-proofing material and other products. Members of the organization include A. Ruckstahl, designing engineer of Holcroft & Co., John Nesser, formerly chemist of Dodge Brothers, Inc., and H. M. Smith, formerly of the Cleveland Electric Illuminating Co. Offices have been opened at 405 Sloan Building.

The Falls Clutch & Machinery Co., Cuyahoga Falls, Ohio, has removed its offices from Cuyahoga Falls to Kent, Ohio.

The Semet-Solvay Co., besides adding 66 ovens to its Harriet plant at Buffalo, is considering building a plant at Toledo, Ohio, adjacent to the Libby Glass Works, that city.

Indiana

INDIANAPOLIS, July 12.

CONTRACT has been let by the Cabranette Corporation, 308 North Michigan Avenue, Chicago, manufacturer of kitchen cabinets, to the P. H. Lorenz Co., Moline, Ill., for a new one-story plant at Michigan City, Ind., 90 x 500 ft., to cost $125,000 with equipment.

E. F. Miller, Farmers' Trust Building, Anderson, Ind., architect, has plans for a three-story automobile service, repair and garage building, 75 x 145 ft., on Jackson Street, estimated to cost $80,000 with equipment.

Fire, July 6, destroyed a portion of the plant of the Climax Coal & Clay Co., Saline City, Ind., including clay-crushing and washing plant, engine and boiler house and coal tipple, with loss reported at $150,000 with machinery.

The Hide, Leather & Belting Co., 227 South Meridian Street, Indianapolis, manufacturer of transmission belting, etc., has plans for extensions and improvements in its four-story factory, with installation of additional equipment, estimated to cost $75,000. Fermor S. Cannon, 21 Virginia Avenue, is architect. Albert G. Snider is president.

The Board of School Trustees, New Salem, Ind., has authorized the installation of manual training equipment in its proposed local school estimated to cost $75,000. Harry M. Griffin, McFarlan Building, Connersville, Ind., is architect.

The Globe Mining Co., Petersburg, Ind., is considering the rebuilding of its coal tipple destroyed by fire July 5, with loss reported at $17,000.

The Enterprise Iron & Wire Fence Co., Indianapolis, recently organized, has taken over the former local plant of the Enterprise Iron Co., and will remodel for the manufacture of ornamental iron fencing, iron stairways and kindred products. Operations will begin at once. The new organization is headed by Julian Bobbs of the Bobbs-Merrill Co., Indianapolis, publisher, who will act as president; Kurt F. Pantzer, secretary and LeRoy Ford, general manager. W. F. Kirkham, chairman of the creditors' committee which lately acquired the Enterprise plant at a receiver's sale, will act as technical advisor.

The Union Furniture Co., Union, Ind., has plans nearing completion for a four-story addition, 32 x 117 ft., to cost about $75,000 with equipment. Martin Fisher, Brighton Bank Building, Cincinnati, is architect.

The Chicago & Eastern Illinois Railroad Co., Chicago, and Evansville, Ind., has plans for new auxiliary locomotive and car repair shops at Pigeon Creek, near Evansville, including engine house, turntable, machine and repair shops and other shop structures, to cost $500,000 with equipment.

The Cleveland Township Board of Education, South Whitely, Ind., is considering the installation of manual training equipment in its proposed two-story and basement high and grade school in the Cuppy Hill section, estimated to cost $115,000. Griffith & Goodrich, 211 East Berry Street, Fort Wayne, Ind., are architects.

The Roxana Petroleum Corporation, Arcade Building, St. Louis, has authorized the immediate construction of a new pipe line from Roxana, Ill., to East Chicago, Ind., about 300 miles, to be used in connection with a proposed refinery at the last noted place, to cost in excess of $5,000,000.

The Pennsylvania Lines West, Pittsburgh, have plans for a new coal dock at Fort Wayne, Ind., with conveying, loading and other mechanical equipment.

The Indiana Rolling Mill Co., Newcastle, Ind., manufacturer of spades, shovels and scoops, is building a 100-ft. plant addition.

The Sturdy Mfg. Co., Elkhart, Ind., maker of warm air registers, poultry feeders, metal egg crates, repair tools for automobiles and air-line equipment, has bought the former factory of the National Mfg. Co., in Elkhart, for immediate

occupancy. The new quarters contain 38,000 sq. ft. of floor space. Charles D. Reeve, former vice-president and factory manager of the Grand Rapids Brass Co., Grand Rapids, Mich., has recently joined the firm as factory manager. Other officers are: B. L. Gray, president; W. T. Gray, vice-president and treasurer, and A. B. Hewson, secretary.

Canada

TORONTO, July 12.

MACHINE tool sales improved somewhat the past week, and according to inquiries now appearing, a steady demand is looked for throughout the next few months. W. W. Pearse, business administrator and secretary-treasurer of the Board of Education, 155 College Street, Toronto, has issued a list asking for lathes, shapers and milling machines for the Central Technical School. This is the second list to appear from this source within the past month. There is also a steady flow of orders for single tools from the automotive industry, while small lists are appearing frequently for railroad car shops. A good demand is also reported from industrial plants.

The National Castings, Ltd., Belleville, Ont., is having plans prepared for a new plant to replace one recently destroyed by fire with a loss of $50,000. Norman Turner is general manager.

The General Motors of Canada, Ltd., Oshawa, Ont., has let the general contract to the W. H. Yates Construction Co., Ltd., 95 King Street East, Toronto, for the addition to its plant to cost $200,000 for the manufacture of Pontiac cars.

The W. E. Phillips Co., Ltd., Oshawa, Ont., manufacturer of mirrors, moldings, etc., has started work on a $12,000 addition.

The city of Quebec, Que., is receiving bids through J. A. Tremblay, waterworks engineer, City Hall, for complete pumping equipment for a waterworks plant.

Construction work on the smelter for the Noranda Mines, Ltd., to be erected in the township of Rouyn, Que., has been started and it is expected that the plant will be ready for operation next spring. It will cost approximately $3,000,000 and will be used, not only for Noranda ore, but will also be available to all mining interests in the district. J. Y. Murdock, K. C., is president of Noranda Mines, Ltd.

The Caledonia Pulp Mills, Caledonia, N. S., will spend $75,000 on repairs to its plant which was recently damaged by fire.

John E. Riddell & Sons, Ltd., 10 Ferguson Avenue, Hamilton, Ont., manufacturer of metallic roofing, doors, etc., will build an addition to its plant to cost $30,000.

The Massey-Harris Co., Ltd., 915 King Street West, Toronto, will erect an addition to its plant. O. H. Shenstone, superintendent, is in charge of construction.

James Steele, Ltd., Woolwich Street, Guelph, Ont., manufacturer of springs, etc., is in the market for tools, including a used Consolidated geared, double crank press, No. 104 or 105.

Construction work is well under way in connection with an addition to the plant at 198 St. Patrick Street, Montreal, for the Northern Electric Co., to cost $372,000. It manufactures electrical equipment, cables, wire, etc.

H. W. Petrie, Ltd., 4 King Street West, Hamilton, Ont., is asking for a 4-in. upsetter and forging machine, with steel bed.

Western Canada

In connection with the new plant for the Manitoba Steel Foundries, Ltd., Selkirk, Man., to replace the one destroyed by fire a short time ago, contract for the supervision of construction has been awarded to Fraser & MacDonald, Winnipeg; contract for structural steel and reconditioning of existing steel to the Dominion Bridge Co., Winnipeg; all reinforcements to the Manitoba Rolling Mills, Selkirk. The Manitoba Bridge & Iron Works has the contract for reconditioning certain equipment. The new plant will be of reinforced concrete, brick and tile, with steel framework and will cost $300,000.

The John East Foundry & Machine Co., Saskatoon, Sask., is building an addition to its plant and will install new equipment.

Construction on the plant on Poplar Island, B. C., for the Canadian Rayon Pulp Co., is expected to start within 60 days. The initial units will cost $1,000,000, which will comprise a 50-ton pulp mill, sawmill, and power plant.

MacWilliam & Burden, Swift Current, Sask., have the general contract for an addition to the power plant at Swift Current to cost $15,000.

Pacific Coast

SAN FRANCISCO, July 7.

THE Republic Steel Package Co., Chesley Avenue, Richmond, Cal., has awarded a general contract to the Miner Co., 2232 Macdonald Avenue, for rebuilding the portion of its plant recently destroyed by fire, to be one-story, 82 x 200 ft., estimated to cost $40,000.

The Ford Motor Co., Detroit, is said to have closed arrangements with the City Council, Long Beach, Cal., for dredging and harbor improvement work preparatory to the construction of a new assembling plant on a 40-acre tract. The initial buildings will provide a total of 350,000 sq. ft. of floor space and are estimated to cost about $900,000 with machinery.

The California Fibre Form Co., Sixteenth, Connecticut and Arkansas Streets, San Francisco, manufacturer of fibre products, will rebuild the portion of its plant recently destroyed by fire, with loss reported at $50,000 including equipment.

The Standard Sanitary Mfg Co., San Francisco, has awarded a general contract to the P. J. Walker Co., Sharon Building, for the erection of its proposed addition, 350 x 1250 ft., one-story, at San Pablo, Cal., estimated to cost $500,000 with machinery. The company is also completing plans for a two-story factory branch, storage and distributing plant, 135 x 250 ft., at North Richmond, Cal., to cost approximately $250,000 with equipment. Headquarters are in the Bessemer Building, Pittsburgh.

The City Council, Pomona, Cal., plans the installation of pumping machinery and auxiliary equipment in connection with a proposed municipal waterworks. A bond issue of $850,000 is being arranged for the project. F. C. Froehde is city engineer.

David Fitzgerald, La Grande, Ore., operating an iron foundry, is planning to rebuild the portion of the plant recently destroyed by fire, with loss estimated at $40,000 including equipment.

The City Council, Lehi, Utah, has plans under way for the early construction of a municipal electric light and power plant. A bond issue is being arranged.

The Pacific States Cast Iron Pipe Co., Ironton, Utah, care of J. R. McWane, McWane Cast Iron Pipe Co., Birmingham, recently organized by Mr. McWane and associates, will proceed with excavation and grading for its proposed foundry at Ironton, to cost in excess of $250,000 with equipment.

The Willys-Overland Pacific Co., 5601 East Fourteenth Street, Oakland, Cal., a subsidiary of the Willys-Overland Co., Toledo, Ohio, has acquired about 100,000 sq ft., adjoining its local plant, and is said to have tentative plans under way for enlargements.

The Cochise Utilities Co., Cochise, Ariz., has preliminary plans for a proposed ice-manufacturing plant at Benson, Ariz., to cost $25,000 with equipment.

The Cosmopolitan Machine Works, Inc., San Francisco, will erect a new one-story plant on West Hampton Place,

to cost about $22,000 with equipment. A. W. Burgren, 110 Sutter Street, is architect.

The Northwest Steel Rolling Mills, Inc., 4301 Eighth Avenue, Seattle, has awarded a general contract to the Austin Co., Dexter-Horton Building, for a one-story addition for cutting and storage service.

The National Ice & Cold Storage Co., Corona, Cal., is considering tentative plans for enlargements in its local plant including additional equipment. C. A. Shepherd is manager.

Foreign

A COMMISSION has been appointed by the Government of Uruguay, with headquarters at Montevideo, Capt. Jose Aguiar, chairman, to purchase equipment and materials for the navy department, including machinery and mechanical apparatus, for which a portion of a recent fund of $45,000,000, voted by the Government, will be used.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, has received an inquiry (P-3326) from a French company in the market for American furniture and infants' vehicles made from steel fiber.

Plans are under way for a hydroelectric power development on the Voda River, Macedonia, Greece, by a Greek corporation in cooperation with a Belgian interest. The project includes the construction of two such generating stations, at Vladovo and Edessa, respectively, with equipment for 15,000 and 17,000 hp., in order noted. The Government of Greece is interested in the projects. The American Consulate, Robert F. Fernald, Saloniki, Greece, has information regarding the enterprise.

The Russian Information Bureau, Washington, has announced that the Supreme Economic Council of the Ukraine has authorized the purchase of the Rheinmetall Locomotive Works, Germany. The plant will be removed to Lugansk, Ukraine, where additional facilities will be provided for locomotive construction and repair work.

The Fiat Co., Turin, Italy, manufacturer of automobiles, forgings, castings, Diesel engines, etc., is disposing of a bond issue of $10,000,000 in the United States, covering a loan financed by J. P. Morgan & Co., New York, the majority of the proceeds to be used for extensions and equipment for the Lingotto Works, Turin, in connection with the proposed production of a new small automobile to retail at $635, United States currency. Giovanni B. Agnelli is president.

The Mannheim and Palatinate Electric Companies, Mannheim, State of Baden, Germany, and Palatinate, Free State of Bavaria, Germany, associated utilities, are disposing of a joint bond issue of $3,000,000 in the United States, a considerable portion of the fund to be used for extensions and betterments in power plants and system. The financing has been arranged through A. G. Becker & Co., 111 Broadway, New York, and associated interests.

The Radio Corporation of America, Woolworth Building, New York, has acquired the Radio Corporation of the Philippines, operating at Manila and other localities, and will expand the properties.

Recapitalization of Otis Steel Co.

The Otis Steel Co., Cleveland, has secured the approval by its stockholders and directors of its recapitalization plan, which provides for the exchange of the present preferred stock for a new issue of prior preference 7 per cent stock, of which an issue of $25,000,000 is authorized. Present preferred stockholders will receive 1½ shares of new preference stock for each one of preferred stock now held, the extra amount of stock liquidating the accumulated dividends on present preferred stock. In addition, $1.75 a share in cash will be paid as accumulated dividend for the quarter since the refinancing plan was first announced.

The Otis Steel Co. has made a remarkable improvement in its earnings and financial position under the present management, headed by President E. J. Kulas. Production costs have been cut by the adoption of more efficient methods and interest charges have been cut down by revamping the financial structure. Earnings during the first quarter, after deducting depreciation charges, were $708,643, or nearly 90 per cent of the amount required to pay the annual dividends on the new preferred stock.

The Wyman-Gordon Co., Worcester, Mass., drop forgings, has cancelled $2,150,000 preferred stock held in the treasury, thereby reducing its capitalization to 21,500 shares of common stock, par $100, which has been changed to 107,500 shares of no par stock by an exchange of one old for five new shares.

THE LAST WORD

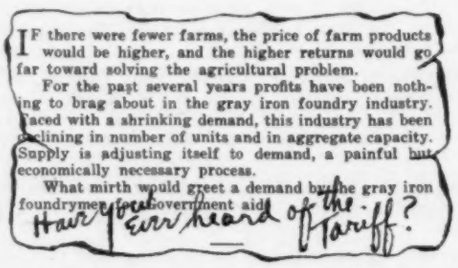
(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

YES, sir. It's the one and only Ty. When we noticed the name Tyrus R. Cobb on THE IRON AGE reader slip used by the MacLaren Screw Products Co., Detroit, we inquired at once, "Can this by any chance be the illustrious 'Georgia Peach'?"

"None other," came the reply. "The man who made base-running one of the fine arts is vice-president and member of the board of the MacLaren firm."

Welcome, Ty. May your business batting average outrival even your record on the diamond.

"TO 'The Last Gasp,'" is the humorous salutation of an anonymous note just received under a Chicago postmark. Here it is:


IF there were fewer farms, the price of farm products would be higher, and the higher returns would go far toward solving the agricultural problem.

For the past several years profits have been nothing to brag about in the gray iron foundry industry. Faced with a shrinking demand, this industry has been declining in number of units and in aggregate capacity. Supply is adjusting itself to demand, a painful but economically necessary process.

What mirth would greet a demand by the gray iron foundrymen for Government aid

Have you ever heard of the Tariff?

To which the obvious answer is, "Yes, but what of it?" What has the tariff to do with the gray iron foundry business? All the gray iron castings that are imported you could pack on your back and still swim the English Channel, if you happen to be a good swimmer. You might just as well try to import corn.

THE man who is looking for trouble, i.e., our postal expert, received just three complaints of delayed delivery, in response to his recent invitation.

On this basis the efficiency of the postal service is 99.99999 per cent plus, and with all due respect to that capable and smooth-running machine headed by Postmaster-General Harry S. New, this record seems a little too good to be true.

So if anyone is withholding a grievance, let him speak up. There must be at least one more complaint on which our postal expert may practice his craft.

FAITH IN STEEL SHAFT BIG HELP TO MELHORN

—Newspaper headline, July 9.

WILD BILL MELHORN was not permitted to use his steel shafts in the British open golf championship. They allow only wood over there.

Bill is no forest conservationist but he puts his faith in steel. So just to celebrate his reunion with his trusty blades, he poled out a 68 in the national open at Scioto last week. That's the record for the new course.

Speaking of records, though it may never compete with the railroads as a consumer of steel, the golf goods industry is typical of that multitude of rapidly growing minor users of steel, which are helping put the big industry over for a new record in 1926. A. H. D.